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PIET DE JONG.

Situla in form of lion's head



The Gordion Campaign of 1957: Preliminary Report

RODNEY S. YOUNG

PLATES 20-27

The work of the sixth campaign of the University Museum at Gordion was begun on April first and continued until September eighteenth.¹ The chief objective of the season was the exploration of the tomb beneath the biggest of the grave mounds, but considerable work was also done on the city mound and on the smaller habitation mound to the southeast of it (the "Küçük Hüyük"), and further investigations were made of the ancient road first discovered in 1955.

Of this last a thirty meter stretch was cleared at the foot of the spur to the east of the city site, where the terrain slopes down to the flood-plain of the Sangarios River. The section investigated lies just to the west of the Koerte Tumulus II.² As this area is on the fringe of a large common cemetery which contains burials ranging in date from Hittite to Roman times, it was hoped that graves might be found beneath the road which could give an indication as to the date of its construction. Despite its very shallow depth below the modern surface, the road was fairly well preserved. Its width was slightly more than 6 m., bordered at either side by a curb of large stones and with a metalled surface of gravel and pebbles. The stone curb along the east side was well preserved throughout, but at the west the curb stones were in large part missing and the road-metal had spread. No wheel-ruts could be detected in its sur-

face, though a wide, well-built and carefully graded artery of this sort must have been intended to carry wheeled traffic.

Cuts made through the road showed three distinct constructional layers, of which the latest may well have been in use as late as Roman times. The earlier layer was bedded on a mass of fairly large stones, which suggests that the road was intended to carry heavy vehicles and which shows some familiarity with the proper methods of road-building. No graves were discovered beneath the earliest road, but a number of potsherds found in its filling may serve to suggest a date for its construction. These were mostly fragments of tall round lekythoi, unglazed but decorated occasionally by a single band of reddish glaze. They find parallels in graves of the archaic and Lydian period, probably of the first half of the sixth century. On the evidence of these fragments, perhaps tossed out from graves disturbed when the road was made, the earliest road would seem to have been laid in the latter part of the sixth century. It would thus belong to the time of the Persian Empire and may well have been a part of the Royal Road of Darius.³

The course of this road can be traced eastward in the direction of Ankara for nearly twenty miles. At Gordion itself its course has been determined across the tumulus-area on the spur to the east of the city site, and as far westward as the middle of

from the Turkish Antiquities Service.

² Best located on the plan, Koerte, *Gordion*, Taf. 1.

³ The Royal Road seems from Susa to have made a great northward loop to Pteria, perhaps making use of earlier Hittite routes; thence westward to the coast. On various maps—e.g., those of Garstang (*AJA* 47 [1943] map facing p. 36) and Sykes (Sir Percy Sykes, *A History of Persia*, Vol. I, map facing p. 142)—its conjectured course is made to pass somewhat to the south of Gordion. But the natural route was by the valley of the Tembris (Porsuk) which flows into the Sangarios at Gordion. Alexander, no doubt using the Persian road, spent the winter of 333 at Gordion where the army was joined by reinforcements. Gordion was an important center of communications; the Royal Road itself probably here crossed the Sangarios and continued westward up the valley of the Tembris to Dorylaion.

¹ For the work in 1957 the University Museum's funds were supplemented by a generous grant from the Corning Glass Foundation. Work done on the big tumulus was on a separate grant from the Pew Foundation. The staff consisted of the writer as director, Dorothy H. Cox as architect, Ellen Kohler in charge of records, and George Bass, David French, and Oscar Muscarella, excavators. Machteld Mellink again worked on the smaller mound. Edward H. and Theresa Howard Carter investigated the ancient road. Piet de Jong spent two months making watercolors of the fragmentary wall-paintings found in 1953 and 1955, ably assisted by Grace Muscarella, who also made drawings and profiles of vases. During a month's stay Axel von Saldern of the Corning Glass Museum went through all our fragments of glass, which he will publish. J. R. McCredie spent August and September taking photographs. The work owed much of its success to Burhan Tezcan, our Commissioner

the flood-plain of the river, where all traces suddenly disappear. Its direction suggests that it probably by-passed the city at the north, doubtless with branches leading to the various gates. In the plain the road lies at a depth of 1.30 m. below the present surface, covered with clay deposited by the river, and at a level which is now very wet. Since it is likely that in ancient times the Sangarios itself, or a branch of it, flowed at the east side of the city mound,⁴ long stretches of the road in this part were probably washed away by the river in late antiquity or before it changed its course. In any case it seemed useless to make more cuts in this area, which was thoroughly investigated in 1956, and therefore trenches were made farther to the west in the hope of again picking up its course. These were at the foot of the small mound or tumulus to the north of the city, the so-called "Kuş Tepe."⁵ They revealed remains of a settlement of late Hellenistic or early Roman times, and though the road did not appear we may assume that it must have passed close by.

THE KÜÇÜK HÜYÜK

Work on the Küçük Hüyük went far to clarify the findings of previous campaigns. The entire mound is artificial and apparently dates back no farther than the Lydian period—late seventh and sixth century. It had two phases: an earlier one in which a crescent-shaped fortification wall with towers served to defend the east side of the Lydian settlement, and a later in which the settlement was abandoned and the central part of its fortification was buried under a large grave mound or tumulus. In its present form the mound thus consists of a high rounded central tumulus with long curving arms, much lower, extending outward to north and south, these last in great part the debris of the earlier defensive walls. The circuit is not closed at the west; between the Küçük Hüyük and the main site there is a wide level depression which we take to be an ancient bed of the Sangarios, and the Lydian settlement would seem to have been protected by the river on that side.

⁴ John Bradford, *Ancient Landscapes*, 70 and pl. 21; Koerte, *Gordion*, 33.

⁵ Koerte, *Gordion*, Taf. 1, beside the modern course of the river to the right of the arrow indicating its direction of flow.

⁶ The top of the fortification wall where it joins the platform on which the barrack stood was taken in 1956 to be the surface of a ramp giving access to the building from the south (AJA 61 [1957] 324f). Actually the wall seems to have been dis-

mantled at the time the later tumulus was made, so that it would not stick up above the sloping surface of the mound; hence the upward slope, taken at the time to be the surface of a ramp. The great width of 8 m. at this point includes the depth of one of the towers that here projects from the outer face of the wall. The succession of towers toward the south linked by the curtain wall is now very clear and supersedes the ramp theory propounded in 1956.

The barrack building was destroyed by fire subsequent to a battle which took place around the

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middle of the sixth century. Pottery found in the burned debris in 1957 was again of the mid-sixth century, mainly lydions and lekythoi of Lydian type. It has been suggested elsewhere that the battle occurred in the course of the campaign of Cyrus the Great against Croesus of Lydia in 547-46 B.C.⁷ That the battle and fire did not come in immediate sequence is again shown by the work done in 1957. The greater part of the barrack building was destroyed in the fire; but other parts were not burned because they had already been buried under the clay of which the tumulus was made. It seems likely that the burial was made immediately after the battle, perhaps of some prominent personage who had been killed. The grave probably lies close to the outer face of the fortification wall near the center of the tumulus—14 m. or more below the level at which the barrack stood. During the piling of the earth for the tumulus, and perhaps when it reached the level of the top of the wall, the barrack building was burned either by accident or design and thereafter the heaping of the mound was continued to its completion. After the building of the tumulus, the Lydian settlement and its fortification was abandoned, evidently replaced by the new city with its strong circuit-wall on the main mound.

THE CITY MOUND

For the first time in 1956 the Phrygian level of the city mound was reached and cleared over a significantly large area. Three buildings all of which had been destroyed by fire early in the seventh century, were revealed *in toto* or in part: the Burned Phrygian Building and the West Phrygian House, both fronting on a large open area paved with stone slabs at the north, and a third, the South Phrygian House, on a terrace behind the first two at the south and about 2 m. higher in level.⁸ For 1957 the objective was to clear entirely the area of the Phrygian level toward the west and south.⁹ To do this, however, it was necessary to start again at the surface, since all the area cleared to the Persian level had been taken down to the Phrygian level in 1956. Two trenches, each 5 m. in width and about 30 m. in length, were completed

on the west side, and two of similar dimensions on the south.

HELLENISTIC AND PERSIAN LEVELS

The uppermost levels proved to have been badly plundered and disturbed. Light walls of rubble had evidently belonged to private houses, of which none was well enough preserved to yield a plan. The third and fourth floors below the surface were remarkable chiefly for the thickly-clustered pits which had been dug into them. In two places, however, cellars belonging to houses of the third level were fairly well preserved: this is the "Graeco-Phrygian" level which we have reason to believe was the town existing at the time of the coming of the Galatians in about 250 B.C., to be dated probably to the first half of the third century. Tucked into a cavity in the foundation of one of these third-level cellars was the most interesting find of the season from the later levels, a coarse jug containing 110 Persian silver sigloi, the second coin hoard found at Gordian. The coins are all well-worn and, with minor variations, of the same type; no bronze coins or silver coins of other mintage were included.

At the Persian level six substantial but badly preserved buildings were located and cleared, wholly or in part. All lie outside the enclosure-wall of the inner gate-court,¹⁰ two at the west and four at the south. The only one fully exposed and taken out in order to reach the Phrygian level below (Building H) lay at the west, continuing the line of buildings (C and G) within the enclosure wall and with the same northward orientation. The plan of Building H was clear enough: the usual porch or pronaos at the front, and a deep inner chamber behind it. But its exact dimensions could not be secured because not a single wall block remained in place, the building having been plundered right down to its foundation beds. The most striking feature of this building was the pebble-mosaic floor of its outer room, fairly well preserved though pierced by several pits. This had been cleared in the autumn of 1955, but no walls were found at that time to go with it. Parallel to Building H at the west and with the same orientation lay another,

an ideal place for deeper cuts below the Phrygian level. Such a deep cut was and is planned; but in 1957 the digging of the big tumulus required so many meters of rails that it was necessary to defer it.

⁷ See the plan of the Persian level and its buildings, *AJA* 60 (1956) pl. 84, figs. 14-15.

⁸ *Archaeology* 6 (1953) 159f.

⁹ Preliminary report for 1956, *AJA* 61 (1957) 320f and pl. 88.

¹⁰ As the stone paving at the north was ripped up before the clay bed for the Persian city was laid there is little hope of well-preserved Phrygian remains in that direction. But since only the slabs themselves were taken up and their hard bedding remains undisturbed, further clearance in this area would offer

Building M, somewhat more promising since there are still wall-blocks in place in its northeast corner, the only part thus far exposed.

To the south of Building H and separated from it by a light screen-wall lay Building I. This again was a substantial building with thick walls of large squared blocks and divided internally by cross-walls into four rooms. A long stretch of its north side has been uncovered, together with its northeast corner and part of its east wall. It evidently lay parallel to the south enclosure wall of the gate court and only a few meters from it. The succession of smaller buildings toward the east (J, K, and L) lie with their north sides in the same line as that of Building I, parallel to the enclosure wall and equidistant from it, probably to leave space for circulation between. The whole layout, here as within the enclosure, suggests that a definite plan was consciously followed in the building of the new archaic town.

As work progressed at the Phrygian level it became increasingly apparent that Persian Building C within the enclosure of the gate court would have to be removed: it lies immediately in front of the inner entrance to the Phrygian Gate, obscuring the plan in this important part of the Phrygian city, and on top of a Phrygian terrace to the east of the Burned Phrygian Building. Building C was dug in 1953. It had two periods, the later reconstruction and expansion obscuring the original version.¹¹ The removal of the foundations of the later building revealed (pl. 20, fig. 1) the earlier: a building somewhat smaller (11.90 by 18.83 m.) divided by a cross-wall into pronao and cella. All of the walls preserved are foundations; the ground-level fell at the level of the topmost course, with a single block still in place at the east side above foundation level. The cross-wall is thus not preserved high enough to reveal the position or width of the doorway which must have connected the two rooms. Near the center of the inner room there was a round hearth of stucco; if one can in imagination restore this on our illustration the similarity between Persian Building C and the Burned Phrygian Building which lies immediately to the west of it (below in the picture) becomes very striking. The pronao and cella (or but-and-ben) plan for large public buildings repeats itself again and again at the level of the Persian city. This plan, however, would not

seem to have been an importation of that time since it appears as a local type in the Phrygian city of the eighth century and is probably ultimately a modification of the still more ancient megaron plan.

THE PHRYGIAN LEVEL

The plan (pl. 20, fig. 2) shows in detail the areas of the Phrygian level excavated in 1957, while the buildings dug in 1956 are indicated in outline only.¹² As may be seen the clearing of the West Phrygian House was completed. To the west of it a long and very heavy enclosure wall was uncovered, and to the west of that the eastern margin of another very large building (called M-3) was revealed. At the south the terrace floor was dug through and two light buildings (Houses X and Y: dotted on the plan) were discovered. Further work was done on the South Phrygian House (upper left) and a new structure at the south, the Terrace Building, was partly dug: its north side appears only in outline at the top of the plan, to the south of the West Phrygian House. All of these buildings were not contemporary, since there were several building periods, and the interrelation between them is somewhat complicated. It will perhaps be best to take them up one at a time, noting beforehand, however, that the two new buildings, M-3 at the west and the Terrace Building at the south, were both destroyed in the same great early seventh century conflagration as were the buildings dug in 1956; this will give a fixed terminus and at the same time strengthen the hypothesis that a destruction shown to be increasingly widespread can hardly have been other than the result of a Kimmerian raid.

WEST PHRYGIAN HOUSE

The inner room of the West Phrygian House had been entirely cleared and its mosaic floor and central hearth exposed and drawn in 1956. Of the west and south walls only the inner faces had been revealed, and the west end of the vestibule remained to be cleared. The digging out of this last gave the end of the west wall of the building, somewhat chewed on its inner face but evidently supported at the corners by vertical wooden posts for which the sockets remain in the surface of the paving beside the wall-end. The north wall of the building was uniform throughout: a bed 32 cm.

¹¹ *AJA* 59 (1955) 7, fig. 11; and pl. 3, figs. 13-14.

¹² They are shown in greater detail on the plan *AJA* 61

(1957) pl. 88, fig. 4 and in relation to the Phrygian Gate, *ibid.* fig. 3.

in width (the width of a single brick) preserving at its bottom over its entire length the charred remains of wooden beams on which a crude-brick wall had been bedded. A wall of this thickness can have been little more than a screen, rising perhaps to less than the full height of the building. There was no evidence for heavier piers or even for vertical wooden posts; the building evidently did not have a façade with columns or piers *in antis*. The pebble mosaic floor, however, covered the entire area of the vestibule so that we must assume it to have been roofed; but the system of roofing must have spanned the room from end to end, continuing the roof of the inner room, since the outer north wall was certainly not strong enough, and possibly not carried high enough, to afford adequate support. One may perhaps imagine a light screen wall to the level of a flat ceiling, above which stood an open gable crowned by the voluted acroterion which was found nearby in 1955.¹³

One of the unusual features of the West Phrygian House is the large number of graffiti or doodles scratched on its outer walls. Many of these were found in 1956 on blocks fallen from its east wall, and some on blocks still in place; moreover it was then surmised on good evidence that similar doodles cover the south and west walls as well. This proved to be the case, though the bench which runs along the base of the east wall did not appear at south or west. The west side has been badly plundered and the stones still remaining in place are cracked and flaked at the surface. The doodles extended downward almost to ground level; one of them is perhaps to be interpreted as a scorpion. The outer face of the south wall, strengthened by heavy wooden posts alternating with pairs of lighter ones, shows many doodles on the face of every stone pier between the post-slots. Two mazes were revealed together with a whole zoological garden of birds and beasts, as well as several humans. Though the wall is here standing to a height of about 1.50 m., it was not possible to clear more than a few upper courses. Two houses, X and Y, built close to or against the south wall of the building, at the same time support and conceal it. At half its height, moreover, there ran a heavy wooden beam embedded horizontally in its face. This beam was burned out in the destruction of the building, and everything above its level would fall were the support of the two small houses taken away. We know

from the exposed southwest corner, however, that the doodles extend to the level of the beam and below, probably nearly to ground-level as on the west side of the building.

The multiplicity and general effect of these doodles is thus best illustrated (pl. 21, fig. 3) in the two southernmost piers of the east wall, exposed in 1956 but not recorded until this year. Between and to either side of the stone piers are the slots in which were once wooden posts, now burned out; of these the one at the left stood at the corner of the building. Above the piers again is a horizontal slot from which a beam embedded in the wall-face has burned; and above that the masonry resumes. Among the doodles on the two piers one may note with pleasure a dancer (upper left) and a plow (lower right); the remaining population of lions, birds, and idol-like human figures are the commonplaces of Gordian doodling. But apart from their own interest these doodles have archaeological significance: they force us to the conclusion that the West Phrygian House was originally a free-standing building fronting on the paved area at the north, its three other sides exposed to and temptations for the idlers who took full advantage of the free space available for their scribbling. The free-standing period was the first phase of the West Phrygian House.

THE LONG ENCLOSURE WALL

To the west of the West Phrygian House, and not quite parallel to it, lies the stump of a very heavy wall (thickness 2.80 m.). This takes its start at the south from an east-west wall now buried under the filling of the terrace, and extends northward to the whole length of the excavated area, disappearing under the undug scarp at the north. The wall is bedded on parallel timbers laid close together and at a right angle to its own direction. The two faces are built of rather small stones, well fitted, and the filling is of rubble; originally the faces were covered by clay stucco. At the level of the preserved surface of the rubble there was a second layer of parallel wooden logs running through the thickness of the wall, about 60-70 cm. above the level of the foundation layer. The superstructure was probably of sun-dried brick, but this has disappeared entirely. The level of this wall is the same as that of the West Phrygian House; the two structures must be contemporary or nearly so, though

¹³ *AJA* 60 (1956) pl. 93, fig. 41.

it is likely that the wall is the earlier because at the north the stone paving, which bears the sockets for wooden posts to support the walls of the building, comes to an end against the east face of the wall, which suggests that the wall already existed when the pavement was laid. The wall must have been an enclosure wall and it must have belonged to the building at the west (M-3) to which it is parallel, dividing it from the West Phrygian House. Farther to the north it presumably also divided the paved area from an enclosure at the west. The approach to this enclosed area must have been from the east, over the paved court within the city gate. One is therefore inclined to surmise a monumental gateway through the enclosure wall. That there was such a gateway and that it lay not far to the north of the edge of the excavated area is suggested by a number of sculptured orthostate blocks of which one was found in 1957 lying on top of the enclosure wall near its north end, the others in 1956 re-used in the foundations of the Persian enclosure wall immediately above. The fragment found in 1957 (pl. 21, fig. 4) is preserved to its full height of 61.5 cm. Its right edge is finished, its top face shows part of a clamp cutting and a second cutting, perhaps for a dowel. The stone is a very soft white poros. Preserved is the head of a feline, facing; the body, which extended to the left as is shown by the bit of neck still preserved, was evidently in relief. The eyes were inlaid, probably with pupils of dark stone and whites of paste or mortar, some of which still adheres in the sockets. In style and technique it is closely similar to the lion heads found in 1955.¹⁴ The Phrygian sculptor seems to have been essentially an engraver, taking full advantage of the softness of his stone to show every surface detail in an elaborate engraved rendering. Perhaps this was his reaction against the hard stone and lack of detail of the Hittite sculptures which were doubtless familiar to him.

When the terrace at the south was made the enclosure wall was deliberately taken down. This is quite evident at the south, where its end is buried under the undisturbed floor of the terrace (pl. 22, fig. 5). At the same time a cross-wall was built at the north, closing off the space between the West Phrygian House and M-3 (plan, pl. 20, fig. 2, and pl. 21, fig. 6), and the level of the area raised, probably to that of the terrace at the south. In this filling the stump of the enclosure wall, now 60-70 cm. in

height, was buried. Presumably at the north of the cross-wall the enclosure wall with its monumental gateway was left intact. Access to the area between the two buildings was given by a staircase built into the angle formed by the northward continuation of the enclosure wall and the western section of the cross-wall (fig. 6 and plan, fig. 2). A possible explanation for this elaborate undertaking is that at this time the West Phrygian House and the Burned Phrygian Building were taken over and added to the M-3 complex, the place of the old dividing wall being taken by a new and much lighter enclosure wall of brick which takes off from the northeast corner of the burned Phrygian building and runs northward as far as the limit of the excavated area, bedded on top of the stone pavement (plan, fig. 2).

M-3

When it first appeared the building to the west of the enclosure wall was joyfully nicknamed Megaron 3 in anticipation of a plan similar to that of the two buildings to the east. Since the plan did not materialize, the name has become a misnomer; but its abbreviation, M-3, is convenient and already deeply embedded, and perhaps it will serve until we can call the building the Palace. Very little of it has been cleared to date: only the northeast corner and a great stretch of the east wall, with the beginning of one interior cross-wall (pl. 21, fig. 7 and plan, fig. 2). The southeast corner, however, has been located (pl. 22, fig. 5: the workman in a cut at the left is cleaning it), giving the outside length of the building as 30.40 m. The walls are of stone with two faces and rubble filling, both sides being strengthened at regular intervals by wooden posts set into their faces in a method of construction similar to that of the other two Phrygian buildings. The north room is 7 m. in depth; but it was a narrow room, as is shown by a bed in the floor at the west side in which are the charred remains of a wooden beam on which a brick cross-wall had been set, as in the north wall of the West Phrygian House. This alone shows that the building was not of the megaron plan; and probably the area to the south of the exposed cross-wall, nearly 20 m. in length inside, was subdivided by at least one more cross-wall as yet unfound.

The building was destroyed in the same fire as were the other buildings. The north room had a hard clay floor, pebbled; it contained some burned

¹⁴ AJA 60 (1956) pl. 92, figs. 42-43.

pottery. The small corner thus far cleared of the room to the south produced many more pottery vessels, and this room threatens to be packed full of burned and broken vases.

HOUSES X AND Y

At some time before the level was raised at the south two small houses, X and Y, were built to the south of the West Phrygian House (plan fig. 2, and fig. 5). Each had but a single room. House X, at the east, was built of sun-dried brick with a strengthening timber framework. It lay with its north wall less than a meter from the face of the south wall of the earlier building, already covered with doodles. Its entrance was from the east; on its long axis there was a round stucco hearth similar to those of the other Phrygian buildings. To the west of it lay a second house, Y, slightly larger, and more regular in plan. House Y was built of small rubble strengthened by vertical wooden posts; its north wall close against the doodled face of the south wall of the West Phrygian House. It was entered through a doorway in its west end. The west façade to either side of the doorway was constructed of piers of brick separated by stone blocks and perhaps blocks of wood in vertical alternation; in any case the stone blocks were found in place with empty spaces above and below, and dowel-holes in their upper and lower faces suggest that wooden blocks had filled these spaces between the stone blocks, fastened in place by dowels. Some of the stones of the west façade bear doodles similar to those of the West Phrygian House.

The two small houses stand at the same level as the West Phrygian House and the Enclosure Wall. They probably served as annexes for the former, perhaps as storerooms or the like. That they were later additions, despite their level, is shown by the fact that they obscure doodles already scratched on the face of the south wall of the West Phrygian House during its free-standing phase. Their walls now stand to a height of 1.20-1.30 m.; originally they must have been nearly as high again. Over the floors there was an accumulation of earth about 20 cm. in depth, which produced disappointingly few potsherds—some fragments of ordinary polished ware, and a couple of painted bichrome ware.

The length of time over which these houses were in use cannot be accurately estimated. When the large project of raising the level at the south by making a terrace was undertaken, Houses X and

Y were demolished down to the required level, and their stumps were buried under the filling of the terrace. This last was entirely of rubble and not a single sherd was found in it. We thus have archaeological and architectural evidence for a succession of building periods, but unfortunately we lack pottery to document the various phases.

THE TERRACE

The floor of the new terrace at the south lies nearly 2 m. higher than the older level which it covers. The filling, as already noted, was entirely of rubble, held back at the north by a long east-west terrace or retaining wall which can now be traced eastward beyond the area occupied by Persian Building C. The terrace wall overlaps the south wall of the West Phrygian House to a short distance beyond its southeast corner, overlying the east end of House X, and there comes to an end. From the end of the terrace wall westward the south wall of the West Phrygian House served to retain the terrace filling. The terrace was probably limited at the west by the east side of M-3. At its west end it had a long northward extension to the cross-wall between the West Phrygian House and M-3. In this part the stump of the demolished Enclosure Wall was buried under the terrace, to which there was access from the north over the staircase by the northeast corner of M-3.

There is evidence for other walls beneath the terrace filling at the original earlier level—for example, a heavy east-west wall which crosses the Enclosure Wall at its south end. That the construction of the terrace had considerably changed the topography of the town in this part was already suspected in 1956. Then it was observed that the passageway between the Burned Phrygian Building and the West Phrygian House, blocked off at the south by the terrace wall, was converted into a series of storerooms by the addition of brick cross-walls, and that the space between the south end of the former (which extends less far southward than the latter) and the terrace wall was similarly treated.

A new series of buildings was constructed at the south at the higher level. Two of these, the South Phrygian House and the Terrace Building to the west of it, have been partially explored. Both were destroyed in the same holocaust as the by then much older buildings at the north. The terrace floor to the south of the West Phrygian House was

covered by debris from its collapse. In several places long strips of discoloration on the floor surface showed where wooden beams from the upper part of its south wall had fallen and burned. Unfortunately the positions of these burned marks could not help us in the reconstruction of the roof of the building, though the new evidence of the tomb chamber under the biggest tumulus (*infra*) adds to the probability of a gable roof.

Before passing on to the later buildings which stood on the terrace we may recapitulate the various phases of the West Phrygian House. First came a free-standing period, during which the walls were exposed and covered by doodles. Later, two houses were built against its south end, and these must have been in use for several years. Still later they were taken down and the terrace was constructed. The terrace itself carried new buildings at its own level, and these must have seen a number of years of occupation before the catastrophe at the beginning of the seventh century in which all the buildings, new and old alike, were destroyed. An estimated date of around 750 B.C. for the original construction of the West Phrygian House would seem to be adequately conservative. The building at the west, M-3, must have been very nearly contemporary.

SOUTH PHRYGIAN HOUSE

Using the terrace wall as its own north wall, the South Phrygian House extended eastward from the southeast corner of the Burned Phrygian Building (plan, fig. 2). Further clearing proved the area in which great quantities of pottery were found stored in 1956¹⁵ to be outside the building, a sort of annex made of wooden posts linked by a light screen-wall of rubble. This annex became known as the "potting shed"; as it turned out it had been all but completely cleared in 1956, and only four more vases were found in its southeast corner. The west room of the South Phrygian House seems to have been a sort of vestibule with a door in its west side and two more in its north. The latter gave access to a broad flight of three steps which led up to another and slightly higher terrace along the east side of the Burned Phrygian Building. This east terrace is partly covered by Persian Building C and its investigation will have to await the complete removal of the later foundations. But the position of the east terrace just inside the opening of the

Phrygian Gate is of great interest and importance, and fully justifies the removal of the later accretion which covers it. The South Phrygian House had a second room to the east. All of these rooms contained a deposit of burned debris on their floors but were otherwise empty. Their southern limits lie beneath the undug scarp and have yet to be defined.

TERRACE BUILDING

Farther to the west on the terrace and with its north wall resting at least in part on top of the early wall buried under the terrace filling, lay the Terrace Building (on the plan, fig. 2, only the outline of its north face appears; see also pl. 22, fig. 5). Two cross-walls running southward divide the interior into three rooms, and more may lie to east and west. None of these has been completely cleared. The west room (fig. 5) had a north-south depth of 13.50 m. Its east wall is continuous and uninterrupted by any doorway to connect the west room and the central room to the east of it. The roof was supported on rows of wooden posts; one post-hole is visible in the illustration. The plaster on the face of the east wall is interrupted by vertical bare strips in which the wall-face itself is exposed. As the intervals between these strips correspond to those between the post-holes we must assume a series of posts against the wall-face, their lower ends bedded on a projecting foundation course of the wall. Since these posts stood against the wall-face, it would seem likely that they carried not the roof of the building, which would have rested more securely on top of the wall itself, but an internal floor which divided the interior of the building into two stories. A parallel has been noted in the north court of the Phrygian Gate Building where walls of sun-dried brick built against the faces of the north and south stone walls must have served to carry a similar internal floor. The west room of the Terrace Building was evidently divided into two stories. It was packed with pottery; two hundred or more vases were recovered. Only one of these can be illustrated here (pl. 22, fig. 8), a squat rounded cup of plain buff fabric, unglazed and undecorated save for the rosettes at the top of the high-swung handles and the movable rings which encircle them. Though the fabric of this vessel is normal for Gordian, the shape is surprising; without a context one might have been in-

¹⁵ AJA 61 (1957) 323f and pl. 90, fig. 13.

clined to assign this vase to one of the early South Italian fabrics.

The north end of the room was occupied by two "grinding stands" of a sort which seem to have been typical adjuncts to Phrygian domestic quarters. A more complete and much larger grinding stand stood against the north wall of the central room of the Terrace Building (pl. 22, figs. 9-10). This was built of sun-dried bricks laid in regular courses at the ends and along the north side, of single bricks stood on end at the south. It was about 4 m. in length by 1.50 m. in width, rising to a height of 60-70 cm. above floor level, and approached by a low step at the southwest side. Its upper face was hollowed, with a low raised rim or parapet around the edges, and sloped from north to south. On this surface there had been a row of five pairs of grinders, of which four lower stones were found still in place, three with the upper stones resting across them. Near the east end lay a heap of charred wheat which had been contained in a wicker basket, waiting at hand to be ground to flour. One may imagine a row of five women or slaves at their labor, kneeling, with their toes braced against the lower parapet as they rubbed the boat-shaped upper grinders back and forth over the grain. This grinding stand with its grain in a basket at hand and ready to be ground gives a vivid impression of suddenly arrested activity, as though the catastrophe came suddenly and unexpectedly to interrupt the normal course of the domestic life of the town.

THE TUMULUS

The biggest of the grave mounds at Gordion lies about a mile to the east of the city site, on a low ridge which carries the thickest cluster of tumuli in the region. Some of these are relatively large, but all are dwarfed by the biggest. Its height is estimated at about 50 m., its present diameter at the base more than 250 m.¹⁶

The location of the stone-pile covering the tomb beneath this mound had been determined by drilling in 1956. The borings indicated that the area occupied by stone at an average depth of 39 m. below the peak lay just to the southwest of center and was about 30 m. in diameter. Of the various methods considered for reaching the tomb under

¹⁶ For the survey of this mound a zero point was taken at the west at the edge of the washed-down earth at the foot of the tumulus. From this point to the summit the height was about

this huge mass of earth and stone, tunnelling offered the advantages of doing the least damage to the mound and of requiring the removal of a relatively small volume of earth.

An open trench aimed toward the center of the stone pile was cut from the southwest margin of the mound to a length of about 70 m. The digging of the open cut gave an opportunity for observing the material—clay—of which the tumulus is built, and its stratification. The outer half of the cut was actually entirely through material washed down from above in the course of the centuries—an outer girdle around the base of the original mound 34.50 m. in width and about 4 m. deep at its inner end. The point at which the original tumulus began was quite clear; one must imagine an ancient mound considerably less in diameter than the present one, but much higher. As all the stratification in the undisturbed clay slopes gently toward the center, one must suppose that the mound was built by piling in the material over an outer ring toward the center. At the inner end of the open trench, 70 m. from the present edge of the mound, the face from which tunnelling was started stands to a height of 11.50 m.

Open cut and tunnel were both made with their bottom at the level of the top of the hardpan so that any ancient cutting below this level would be immediately detected. The tunnel was carried through uniformly hard clay to a distance of nearly 70 m. from the face; the hardness of the material made necessary only a minimum of shoring. At the inner end tunnelling was stopped by a roughly-built wall of soft limestone blocks in eight to nine courses, or about 3 m. in height. An attempt to pass over the top of this wall by raising the roof of the tunnel showed that the clay here underlies the edge of the stone-pile, and the hole through which the stones began to pour down was quickly sealed off, but not before it had been noted that the thickness of stone here is little more than a meter, with the overlying clay sloping downward toward the perimeter—clearly close to the edge of the stone mass. A pit dug against the face of the stone wall showed it to go down at least two courses below the top of hardpan. The only possible procedure seemed to be to break a hole through the wall—a procedure seemingly safe enough on the assumption

53 m. But the terrain under the mound slopes downward to west and north; the true height of the mound itself from peak to hardpan at center must be around 46 m.

tion that the floor of the tomb would be at least as low as the bottom of the stone wall. With the opening of a hole through the wall stone rubble began to pour out, of round water-worn stones mostly the size of an orange, but with occasional bigger ones. The rough finish of the inner face of the wall, when it could be observed, indicated that we were not yet inside the tomb proper. The rubble continued to pour out and to be taken away for the better part of a week. Its removal revealed the face of a wall of large wooden logs piled one on top of the other to a height of eight, or about 2.50 m., and parallel to the stone wall. When the rubble had stabilized itself more or less, the sides were sealed off and the tunnel was brought in to the face of the wooden wall.

The logs, of cedar or juniper, were of varying size, from 30 to 60 cm. in diameter. The branches had been trimmed off but the logs were otherwise unworked, and in places the bark could still be seen. They had been laid evidently in a system in which two big logs alternated with a smaller one; of the eight tree-trunks six were over 50 cm. in diameter, and two less than 40 cm.¹⁷ Holes bored through one of the smaller logs showed an inner filling of more rubble. A small window was then made through the wooden wall, and more rubble taken out; but its removal quickly revealed the face of a second inner wall of wood only 30 cm. inside the first. Here the wood had been squared into beams with flat faces which were closely fitted together. Borings through the inner wall showed no rubble on the other side; the tomb was evidently intact with its roof unbroken.¹⁸ Doors were then cut through outer and inner walls to gain access to the interior (pl. 23, fig. 11).

The tomb chamber measures 6.20 m. in length by 5.15 in width, with a north to south orientation.

¹⁷ Cross-sections of three of these logs were brought to America and submitted to Professor J. L. Giddings of Brown University for examination. Their study has not yet been completed, but it is reported that one of them shows up to 700 growth rings. If our tomb is to be dated 725-700 B.C., this tree would have started to grow around 1400 B.C. The possibility of establishing a dendrochronological chart for Anatolia which might carry us right back to the time of the Hittite Empire depends on the availability of wood or charcoal samples from such sites as Boğhaz Kale and Kültepe as well as upon a sufficient uniformity of climate and rainfall over the Anatolian plateau at that remote period. The project is well worth pursuing. It may be noted here that two samples from the Gordian tomb, submitted for radiocarbon examination to Miss Elizabeth Ralph of the Physics Department of the University of Pennsylvania have yielded results; others are to follow. The first sam-

The walls, varying from ten to eleven beams in height, measure 3.25 m. from the floor to the beginning of the roof. The wood, probably of pine, was most carefully fitted and joined, and excellently finished on its inside face; the tooling, barely visible, suggests a finishing with the adze before sanding (pl. 23, fig. 13; pl. 25, fig. 15). In several places imperfections in the wood had been cut out and the cavities filled by carefully fitted blocks.

The chamber is covered by a double-sloped roof supported at either end and at the center by triangular gables, the central gable resting on cross-beams which span the room and are mortised at their ends to the outer tomb-wall (section, pl. 25, fig. 12; pl. 23, fig. 13). The roof is double, with an outer layer of round logs overlying the inner layer of squared timbers.¹⁹ The central cross-beams supporting the roof had cracked under the pressure of the stone and clay above, and it was necessary to insert strong wooden props beneath them. Examination of the northwest corner of the structure showed that the ends of the timbers of the shorter walls are set into mortises in the faces of the beams of the long walls, and that the ends of the latter are in turn mortised to the faces of the logs of the outer structure. The logs of the outer walls are in no way fastened together at the corner—their ends in some cases do not even meet. The round logs, piled one on top of the other, thus have no support to hold them in place other than the rubble piled in at either side, and this gives us a clue as to the constructional methods employed. The enclosing stone wall and the inner wooden wall must have been built first, either to their full height, or more probably course by course before the logs of the outer shell were laid. The latter, laid one log-course at a time, must have been packed with rubble at either side as it rose, course by course, since the round

pile, wood from the outer tomb-wall, gave an age of 2,700 years with a tolerance of 140; that is, 743 B.C. \pm 140. The second, of textiles from the bed inside the tomb, 2,615 years, with a tolerance of 138, or 658 B.C. \pm 138. There is a slight possibility of some modern contamination of the second sample.

¹⁸ For a similar double wooden tomb with rubble packing between the walls in Russia, see *AJA* 37 (1933) 33, fig. 2 (Pazirik).

¹⁹ The outer layer of round logs on the roof has been omitted in the section, fig. 12. This section is of course in large part hypothetical, since of the outside of the tomb we have exposed about half of the west side and the northwest corner only, the latter not to its full height. It is reasonable to suppose, however, that the four corners were alike, and the east side the same as the west.

logs with nothing to hold them in place would have rolled out of position. In this way the double tomb-chamber must have been built up to roof-level, and without a door or means of access other than from above, until the time for burial came. At the same time the base of the tumulus was made in order to relieve the outward pressure of the rubble against the stone enclosure wall, which is only one course in thickness—about 80 cm. The clay outside the stone wall to the level of its top was certainly already in place when the tomb was closed, since the outer perimeter of the stone-pile rests on it. An attempt was made to relieve, or rather to spread, the downward pressure of the stone mass by laying a series of long parallel logs in the rubble immediately above the ridge of the tomb-roof, at right angles to it and to its entire length. Above these the stones were piled to a depth of almost three meters, assuming the shallow dome-shaped mass natural to such a pile of loose stone. Over this again the clay of the tumulus was piled to a height of nearly forty meters. In the course of more than two and a half millennia the clay has packed down and hardened to form a natural dome, molded on the original surface of the stone mass. During the excavation about one third (calculated roughly at 250 cubic meters) of the rubble was withdrawn; the part of the clay dome exposed above holds up of itself.²⁰

Our tomb conforms to the type of tumulus burial of Phrygian times already known from other examples, in which there was no entrance to the burial chamber.²¹ The body and the offerings were put in from above before the tomb was covered by its roof; the pile of stones heaped over the cover made entrance impossible, and the huge clay mass of the tumulus served as a protection, keeping out water, and at the same time as a conspicuous monu-

²⁰ The problem of the clearing and preservation of the wooden tomb is a somewhat delicate and complicated one. The removal of all the rubble stone will relieve the pressure against the sides and roof of the chamber, but it will be necessary somehow to support the outer walls of round logs piled one on top of the other and presently held in place only by the packing to either side. At the same time the removal of the rubble will expose the full span—something between eleven and twelve meters—of the overlying clay dome, and take all support from under it. The solution would seem to be the making of a strong supporting dome immediately beneath the clay, ideally in sections as the rubble is removed and the clay dome exposed. The outside of the wooden tomb will then be relieved of all pressure and become accessible for closer examination and for the treatment and preservation of the wood. Since a wooden structure of this sort from antiquity is quite unique and un-

ment. Our tomb differs from those explored hitherto in that the wooden structure was made above the level of hardpan, rather than set down into a pit made to receive it. The stone enclosure wall thus took the place of the vertical walls of such a pit, and was necessary to retain the rubble packing outside the tomb walls. The floor of our tomb is of long wooden beams approximately 33 cm. in thickness laid on a bedding of rubble; the wooden structure was thus embedded on all sides in stone which could not easily be dug through by burrowing animals.

Such tombs were obviously intended for use only once. After the dead had been put in, the roof constructed, and the stones and clay heaped over it, the tomb became inaccessible and could not be entered to make later burials. The scale of this tomb and of the mound over it as well as the richness of the offerings placed in it attest the importance of the single individual for whom it was made—presumably a Phrygian king of the most flourishing time of the Phrygian power. His skeleton lay on a great four-poster bed at the northwest corner of the tomb chamber (plan, pl. 24, fig. 14). The body had been laid on its back, head toward the east, the legs extended and the arms along the sides. It had been dressed in a leather skirt with a band of bronze-studded decoration along the hem, and an upper garment of cloth fastened at shoulders, elbows, and wrists by bronze fibulae. Mere shreds of this garment had survived and its original form was impossible to determine.²² The collapse of the bed had jarred the skeleton somewhat out of position and scattered the bronze fibulae which must have fastened its clothing—a total of 30 of these was found on the bed, of which the original position of only a few could be guessed. The skeleton was that of a male over sixty years of age and of

paralleled, its proper clearance and preservation is of the first importance. Architects and engineers of the Ministry of Education of the Turkish Government have the problem under study, and the Ministry will undertake the conservation of the tomb.

²¹ Closely contemporary examples are Koerte Tumulus III (Koerte, *Gordion*, 38f) and Tumulus P, dug in 1956 (*AJA* 61 [1957] 325).

²² Many samples of textiles from the tomb were brought to America and are under study by Miss Louisa Bellinger at the Textile Museum in Washington. These are important from several points of view: for example, while we may take wool to be a local product, flax for linen, or cotton, must have been imported as it is unlikely that they could have been grown on the Anatolian plateau.

small stature, his height in life estimated at 1.59 m.²³

The bed, set along the north wall with its foot against the west wall of the room, rested on four large corner blocks of squared wood. Its outer dimensions were 1.90 by 2.90 m. Shallow round cuttings on the upper faces of the corner blocks had served as beddings for vertical corner posts. Head- and foot-boards, convex in profile and scrolled at either side, had stood at the ends, supported on horizontal bars of iron laid between the corner blocks. The bed itself was a platform of wooden planks laid lengthwise and apparently supported at their ends on these same iron bars. The edges fell at half the width of the corner blocks; they seem to have been supported along the sides by planks stood on edge and closing the space beneath. It was evidently enclosed on top by light rails of contrasting dark and light wood running along the sides. The bed was overlaid by a coverlet of up to twenty layers of cloth, linen and wool in various colors. In the course of time the whole had collapsed; the planks of the bed-platform lay on the floor of the tomb, the head- and foot-boards had fallen outward, and the dowels holding the corner posts had given way.

The other furniture of the tomb (plan, fig. 14) consisted of nine three-legged tables of wood and two inlaid wooden screens. A mass of badly warped and broken fragments which lay in the northeast corner were perhaps parts of three low tables or stools. One plain three-legged table had stood against the north wall at the head of the bed; five more had occupied the open central part of the room, and an additional two had stood against the south wall near the southeast corner. The ninth wooden table, a much more elaborate structure, carved and inlaid, had stood against the east wall just to the south of center. The two screens leaned against the east wall at its center. The space in front of the western half of the south wall was occupied by three large bronze cauldrons set upon iron ring-stands. Rows of iron nails had been driven into the south wall and the east and west walls to about two-thirds of their length from the south corners, and from these had been hung bronze vessels and other ornaments. The tables had been piled high with bronze bowls and other offerings. In the course of time the tables had collapsed and fallen to the floor, and the iron nails had rusted through.

The floor of the tomb was thus found covered by bronze vessels which had fallen from the tables and the walls, to a total (including the three cauldrons) of 169. These were mostly in excellent condition, though one more (the 170th) which had rested on a corner-post of the bed was too corroded and broken to save.

The inventory of bronze vessels follows:

Large cauldrons on iron stands	3
Round-bodied trefoil jugs	10
Smaller trefoil jugs	19
Spouted jugs	2
Situlae	2
Deep bowls with ring handles	6
Deep bowls with bucket handles	4
Shallow bowls with ring handles	16
Rim-handled basins	3
Spouted one-handled bowls	2
Ladies	2
Plain hemispherical bowls	2
Ribbed omphalos bowls	7
Plain omphalos bowls	37
Petalled omphalos bowls	54

It is evident that the hemispherical and omphalos bowls, without handles, could not have been hung from the walls and were therefore laid—probably in stacks—on the tables. Most of them were found on and around the collapsed tables; in some cases the table-tops bore the imprints of the omphalos bowls which had rested on them. Almost all of the handled vessels, on the other hand, must have hung from the nails in the walls. They were found along the wall-bases below the nails, some with traces of iron rust on the under side of their handles. The north end of the tomb, where there were no nails in the wall, was entirely free of bronze vessels. The total of handled vessels of bronze, as may be seen, was 66. The total number of nails in the walls was 70, but of these ten on the west side served to hang ornaments of another sort. Thus six of the bronze vessels with handles must have been placed with the bowls on the tables. The nails in the west wall were in two rows of ten each, and one of these rows was not used for hanging bronze vessels, as we have noted. The other row, on the other hand, must have served to support the ten large round-bodied trefoil jugs which were all found (and without other bronze vessels among them) on the floor along the base of the west wall. The bronzes hung

²³ The skeleton was examined by Professor Muzaffer Şenyürek of Ankara University.

from the nails in the east wall had broken the back-pieces of the wooden screens as they fell, causing the screens to tip backward to lean against the wall.

The ring-handled bowls, both deep and shallow, the omphalos bowls, the ladles, and the rim-handled basins are of Phrygian types already known from Koertes' Tumulus III and IV, from the tumulus (P) dug in 1956, and from tombs in Ankara. The ring-handled bowls with bronze bands reinforcing the rim on the outside are certainly of Phrygian origin, though they seem to have had a fairly wide distribution: examples are cited from Cyprus in the Cesnola Collection, and one is shown in the hand of an ivory statuette from Ephesus.²⁴ The spouted jugs and the round-bodied trefoil jugs find close parallels at Gordion among the pottery vessels found in the destruction level on the *hüyük*, of the early seventh century. All of the above bronze vessels were probably local products and we have direct evidence for a local bronze-working industry at Gordion as early as the middle of the seventh century in the form of fragments of coarse clay crucibles from which molten bronze has been poured. These last suggest by implication that Gordion may well have been producing its own bronzes already in the eighth century. The great numbers in which they are found—and this is especially so in the case of the bronze fibulae—and their concentration in the Phrygian area would indicate that they were a Phrygian product, while the direct evidence for a bronze-working industry would indicate Gordion as a center of their manufacture.

Of the more elaborate bronzes from the tomb the origin is less certain. These are five: the three cauldrons and the two situlae.

The first of the cauldrons (at the left, pl. 25, fig. 15) measuring 51.5 cm. in height by 78 cm. in diameter, is adorned with four handle attachments in the form of sirens or human-headed birds. The outspread bird wings and tails, applied against the wall of the cauldron below the rim, are fastened in place by bronze rivets; the human shoulders pro-

ject above the rim, the arms spread along the upper edges of the wings, and the heads face inward. Two of the heads, facing each other across the top of the cauldron, were probably intended as female; the other two are male, wearing square-cut beards of Assyrian type (pl. 26, fig. 16). Such details as the hair, the embroidered neck and sleeve borders of the dresses, and the feathers of the bird wings and tails, are rendered by copious engraving on the surface. From a ring-socket set vertically at the back of each figure is suspended a ring-handle by which the cauldron could be lifted. The second cauldron is of the same type, but with four unbearded heads, probably female. These vary slightly in type, and small variations in their measurements show that each was cast in a different mold. This cauldron seems to have seen considerable use before being placed in the tomb, since all of the ring-handles are missing and two of the bird tails have lost their lower ends (pl. 26, fig. 17). The third cauldron, somewhat smaller than the others, has only two handle attachments, in the form of bull heads facing outward. These also bear ring-sockets on top, into which are set ring-handles (pl. 25, fig. 15, right; pl. 26, fig. 18). In many details the Gordion bull-head attachments differ from the well-known Urartian ones: they are made in one piece with their T-shaped plates, rather than brazed to larger bird-profile plates; the forelocks of the bulls are triangular rather than square-ended with rows of ringlets; there are no bands of engraved decoration at the base of the horns; and the ring-attachments on top are lacking on all the known Urartian examples. It therefore seems quite possible that the bull-headed cauldron is a product of the local bronze-working industry, made at Gordion.²⁵ The question of the origin of the other two cauldrons needs further study. Siren attachments from similar cauldrons have been found in the region of Lake Van and are of Urartian fabric. It is possible that our siren cauldrons may be imports from Urartu; it is also possible that the cauldrons themselves were

²⁴ Deep ring-handled bowls: Koerte, *Gordion*, 70-71 and figs. 46-48; Tumulus P, *AIA* 61 (1957) pl. 93, fig. 30. Omphalos bowls, *ibid.*, fig. 31 and Koerte figs. 53-54. Ladles, Koerte figs. 59 and 74; there were two in Tumulus P of which illustrations have not been published. Rim-handled basins, Koerte figs. 50-51; another from Tumulus P, not yet illustrated. The shallow ring-handled bowls from the Agricultural School Tumulus in Ankara, Ekrem Akurgal, *Phrygische Kunst*, Taf. 57-59 and p. 81ff; from Cyprus, G. M. A. Richter, *Bronzes in the Metropolitan Museum*, No. 538; the Ephesus ivory, Hogarth, *Ephesus*, pls. XXI-XXII.

²⁵ In the most recent study of the bull-head cauldrons (*The*

Aegean and the Near East: Studies Presented to Hetty Goldman, 239f) Pierre Amadry analyzes the style of Urartian examples. To the ones cited by him should be added those discussed by G. Hanfmann, *Anatolian Studies* 6 (1956) 205ff, and these bear out Amadry's conclusions. One cauldron, probably from a tomb at Cumae in Italy and now in the Museum at Copenhagen, though undoubtedly an import to Italy from the orient, differs in many details from the Urartian examples, and may be the product of another center of bronze-working. It is certainly closer in style to the Gordion cauldron than are the Urartian ones.

made at Gordion and only the attachments imported. The finding of another cauldron of the same type in the Bernardini Tomb at Palestrina in Etruria, however, suggests that the transportation of such bulky objects was not as difficult as it might seem.²⁶

The two bronze situlae, one ending in a ram's head and the other in a lion's, are unique. Each has a bucket handle and a rounded inner bottom, so that the heads in which they end are hollow. The eyes of lion and ram were inlaid in white paste, with black stone pupils. Surface details were rendered by the finest engraving. In general they are in good condition, though both show spots of bronze disease. The lion situla (frontispiece) finds parallels in the sculptured reliefs of the palace of Sargon II at Khorsabad, where servants are shown dipping wine from cauldrons with similar cups.²⁷ A bronze weight in the form of a lion, now in the Louvre, is strikingly similar in style.²⁸ Our situlae may well be imports from Assyria; in any case they suggest a date for our tomb in the time of Sargon II, or the last quarter of the eighth century.

The objects which hung from the second row of nails in the west wall of the tomb, found fallen to the floor along the west wall, were ten flaps of leather and bronze of which we do not know the use. The oblong flaps are about 20 cm. wide by 50 cm. long, made of at least six layers of leather (pl. 26, fig. 19). The upper surface of each is decorated with studs of bronze laid on in varying patterns to form squares, usually three to each flap. The uppermost of these squares was covered by a flat disc of bronze, open at the center and with flanges

²⁶ The Bernardini Tomb, *MAAR* 3 (1919); the cauldron, no. 75. The attachments in the forms of "winged human protomes" have been listed by Kunze, *Kretische Bronzereliefs*, Anhang II, 267; most of the oriental examples from Lake Van, the Greek and Italic ones evidently derivative. Additions by Kunze, *Reinecke Festschrift* 100-101. The combination of "siren" attachments presumably of Urartian origin with griffin or serpent attachments on cauldrons found in Etruria is discussed by Amandry, *op.cit.* 248, note 28.

²⁷ P. E. Botta, *Monument de Ninive*, I, pls. 16 and 76; lion-headed cups of the same design, without handle (rhytons) pls. 64-65. The handled cups (situlae) appear only on the reliefs of Sargon II and not on those of earlier and later kings. It is a question whether these are Assyrian, or part of the plunder taken from Urartu: lion heads of very similar style appear on the Haldis temple as shield bosses (Botta, pl. 141). The bronzes from the Toprak Kale excavations have been discussed by R. D. Barnett in *Iraq* 12 (1950) 1ff and 16 (1954) 3ff. The cup-bearer slab has most recently been illustrated by K. R. Maxwell-Hyslop in a line drawing in *Iraq* 18 (1956) 152, fig. 2.

²⁸ Botta, *op.cit.* vol. 2, pl. 151; also in H. Frankfort, *The Art and Architecture of the Ancient Orient*, pl. 115.

at two sides which were bent under to hold together the thicknesses of leather beneath. The discs are ribbed and decorated with studs of various sizes; the openings at their centers are filled by even finer studded decoration, applied to the leather beneath, the studs arranged in concentric rings varied by rings of slightly larger studs. Similar ringed decoration encircles each of the studs of the square design, on the flaps below; but as these circles intersect, some are shown as incomplete. The heads of the smallest studs are 1 mm. in diameter. Studs of the next size, about 2 mm., outline the edges of the flaps.²⁹ None of the suggestions made as to the use of these bronze-and-leather objects seem satisfactory, since it is difficult to see how they could have been used as belts, armor, or horse-trappings.³⁰

On the floor beside the table which had stood at the head of the bed lay a sack of linen cloth containing bronze fibulae. A number had spilled out and lay scattered on the floor; evidently the bag containing all the fibulae had been laid on the table, and had fallen when it collapsed. Altogether there were 145 fibulae in this group, which is in addition to the 30 found on the bed. Ten of these have double pins with removable flat bronze shields or safety catches which can be slid off, decorated in various ways (pl. 25, fig. 20). The rest divide into four main types: those with studded flat arcs, those with faceted arcs, plain, bulging at the center, or with central reel; those with arcs round in section and decorated with reels, and those with plain arcs oblong in section. Most are in excellent condition, and all conform to Blinkenberg's Asia Minor types (XII) most of which we have good reason to believe were made at Gordion.³¹

²⁹ This superfine decoration gave all appearances of being textile work, knotted or tatted to the pattern desired. Miss Bellinger, however, has shown that the whole is of tiny bronze studs, each stud with two flanges at the edge to hold it in place on the surface of the leather.

³⁰ That they were belts has been suggested on the analogy of the belt worn by King Upallu on the rock-relief at Ivriz (Frankfort, *op.cit.* pl. 164; Akurgal, *Phrygische Kunst*, Taf. C; *JHS* 68 [1948] 7, fig. 6) but none of the illustrations is clear. One of our flaps would be too short, a combination of two rather long; and no attachments were found, either to join two together, or to serve as clasps.

³¹ C. Blinkenberg, *Fibules grecques et orientales*, 204ff. Of the examples he cites more than half were found in Asia Minor, and most of these at Gordion itself or its hinterland from Ankara to Eskişehir (Dorylaion). A tumulus dug at Gordion in 1951 yielded more than 170 examples, and our present tomb contained 175 altogether. The very numbers are overwhelming; and we have already cited the evidence for a local bronze-working industry. To the best of my knowledge no fibulae have been reported from the Urartian region around Lake Van.

Such pottery as was offered in the tomb was placed inside the three large bronze cauldrons. All the vases were of plain black polished Phrygian ware; none were painted. The shapes were only two: neck-amphorae, and round-bodied deep bowls shaped like dinoi. All of these vessels had evidently been filled with offerings of food at the time they were put in the tomb. All were found in very bad condition, perhaps due to the chemical action of their contents; in any case the clay has split and either the outer or the inner surface flaked off, leaving a shell so thin as to be impossible to reconstruct. The siren cauldron contained five "dinoi" and one neck-amphora; the bull cauldron the same; the "beards and sirens" cauldron two "dinoi" and four neck-amphorae. There were evidently also other vessels of pottery which had disintegrated almost completely. Samples of the contents of each vessel were taken to America for analysis. On the surface of two of these vessels were graffiti. One of these was merely herringbone with a central spine, like a conventionalized palm-branch; the second an inscription in alphabetical writing running from left to right. It is incomplete; the beginning is preserved but the end lost, and there is a brief gap between the first six and the last three letters preserved. The alphabet appears to be fairly well developed Graeco-Phrygian; the use of a *sigma* with five bars seems to be characteristically Phrygian.

This was not the only inscription found in the tomb. On three of the ring-handled bronze bowls the end of the rim beside one handle was smeared with beeswax, and alphabetical inscriptions were scratched in the wax. These were necessarily brief, since the wax covers only the part of the rim between the lip above and the applied bronze strip below, the handle and the first vertical lug on the outer face of the rim. All of the inscriptions read from left to right; two are of only three letters each, while the third includes a five-barred *sigma* and the sign \dagger , characteristic of the Asia Minor alphabets but up to the present lacking among the known Greek epicoric alphabets. These brief inscriptions cannot be read as yet; but they show at least that alphabetic writing had reached Phrygia by the last quarter of the eighth century. One of the bowls with its inscription (the longest) is illustrated in pl. 25, fig. 21.

The furniture in the tomb was in varying states of preservation in accordance with the amount of moisture to which it had been exposed and the

kinds of wood of which it was made. The eight plain tables were all alike, with slight variations in their dimensions. The tops, oblong in shape but with rounded corners, were slightly hollowed at the surface, leaving a low raised rim around the edge. They were all made from a very soft dark brown wood (pine?) which had suffered badly from the moisture, cracking and warping and shredding; what remained was of a soft pulplike consistency. The legs, on the other hand, of a much harder wood and lighter in color (boxwood?) were mostly in excellent preservation. In every case a table had three legs only. These are outward curved, ending in plain feet flat at the bottom to rest on the floor. Since the wood is nowhere cut diagonally across the grain (which runs up and down) the curved shape of the legs must be the result of some process of bending, either by water or by steam. The plane of the bottoms of the feet shows that the curved profile of the legs was original and intentional, not the result of later warping.

The ninth table, also made with three legs, was much more elaborate. Plate 27, fig. 22 shows it as it was found; fig. 23 Miss Cox's reconstruction. Its top had almost entirely disintegrated, but enough was preserved to show that it had been similar to those of the other tables and of the same kind of wood, with the exception that all around its edge there were small dowel-holes on the under side. The table had a lower frame from which wooden finial-like pieces, dowelled to its upper edge, extended upward, ending at the top in small dowels which must have been fitted to the holes in the under side of the table top. There were fourteen of these finials, four to each of the short sides and three to each of the long sides of the frame. The long sides were completed at either end by curved handles by which the table might be lifted. The frame—which was oblong—was fastened by horizontal dowels to the legs, two running out from each leg. It was further supported by struts running up from the outward-curved faces of the legs just above the feet. Two of these struts were identical; the third, from the front, was double—two struts near the ends, running down to the ends of a rocker-shaped piece dowelled across the front leg. The whole—legs, the square medallions of the frame, finials, rocker, and struts—was made of light wood elaborately inlaid with dark. This table demonstrates the great technical skill, if not the good taste, of the Phrygian cabinetmakers.

The two screens are of the same type as the one

found in 1956 in Tumulus P, and throw considerable light on its proper reconstruction.³² Hitherto it has been called a throne-back, although it has been obvious that the back had been made separately from the seat, which was in no way attached and was removable at will. The screens found in 1957 (in all but the slightest details identical the one with the other) measure about 95 cm. high by 80 cm. wide (pl. 27, fig. 24). Each is made up of a number of pieces fastened together by tongues fitted into sockets, with pegs run through to hold the tongues in place. The material used was the hard light wood, probably box. After the pieces had been joined—and mostly so cunningly that the presence of the joints was detectable only from the positions of the ends of the pegs holding the tongues—the whole surface was inlaid with a darker wood in geometric designs, the inlay-strips passing right across the joints between the component parts. The inlay was done with the utmost precision and delicacy. The upper parts of the screens were laid out in rows of square panels each filled by an elaborate swastika design; of these there were 112 (eight rows of fourteen), no two exactly alike. The space between the swastikas was filled by tiny inlaid lozenges and triangles of dark wood in rows, done with such pious conscientiousness that in a number of places these were inlaid even into the ends of the pegs. The lower half of each screen contained a central round medallion, filled with curvilinear inlay designs. Below the medallion two curved pieces of wood, resembling the curved table-legs, were inset, running down to the corner at either side and ending in scroll feet.

Affixed to the backs of the screens at the top were oblong wooden frames set horizontally. The open spaces framed by these were filled by panels of carved openwork, circles tangent or joined by struts. From the center of the back-piece of each frame a long wooden leg ran downward to the floor, ending in a foot similar to those at the lower corners of the screens in front. The legs were steadied by two struts at each side, running diagonally upward to the back of the frame, to which they were secured by tongues set into sockets. Again the reconstruction is certain on the evidence of tongues, sockets and breaks (pl. 27, fig. 25). The bronze vessels hanging from the east wall above

the screens broke and knocked out the back frames as they fell, but one side-piece remained in its proper position to show how the whole should be reconstructed (visible in pl. 27, fig. 24, upper left). The screens were thus flat vertical wooden panels, meant to be seen from the front and from above; a concealed leg at the back gave them stability and prevented forward or backward tipping.

These pieces of furniture must have been completely portable items which could be set up wherever desired. Since we know from 1956 that the seat of the "throne" was also an independent and portable piece, it may well be that the screens, as we now call them, could also have been used on occasion as backs to lean against when seated, simply by placing the portable seat in front; the back leg would prevent tipping over backward.

The cabinetwork, the bronzes, and the many-colored textiles found in our tomb demonstrate the skill of the Phrygian artisans of the late eighth century. The tomb itself with its finely finished walls demonstrates the skill of the builders; and the raft of timbers laid over it to relieve the pressure of the tumulus intimates the comprehension of the engineers. The inscriptions, scanty and brief as they are, show that some at least of the Phrygians of that time were not illiterate. Questions which may be raised as to the reasons for the absence of objects of precious metals, or of weapons, cannot be answered, though our burial confirms the negative evidence of the tombs already dug of the same time—Koerte III and Tumulus P. Perhaps it was simply not the custom of the Phrygians to place such objects in their tombs. Yet these burials are of the time of the greatest prosperity of the Phrygian Kingdom in the half-century before its destruction at the hands of the Kimmerians. The dating would seem to be firm on the evidence of the fibulae, the bronze situla which finds its relations on the sculptured reliefs of King Sargon II, and the findings of the radiocarbon analysis—between 725 and 700 B.C. This should at least offer a fixed point of comparison for many objects found from Lake Van to Etruria, which have hitherto been floating in a chronological limbo extending from the ninth through the seventh century.

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³² *AJA* 61 (1957) 329; frontispiece and pl. 96, figs. 37-38. We can now see that the pieces illustrated, *ibid.* pl. 95, figs.

34-35, were the horizontal openwork frame at the top, and the leg—not a canopy-holder.

Excavations at Serra Orlando (Morgantina)

Preliminary Report II

ERIK SJÖQVIST

PLATES 28-35

The third season of the Princeton excavations at Serra Orlando, near Aidone, began on March 25 and lasted till June 23, 1957.¹ The field of operation, earlier confined to the Hellenistic agora and its vicinity, was this year widened to include the ancient acropolis of the town (Area III), situated some 1400 m. to the northeast; a hill just inside the northern boundary of the city wall some 300 m. northwest of the agora (Area IV); and the western slopes of a second hill to the west of the market place (Area II). The excavations on the acropolis, in particular, furnished additional evidence confirming the hypothesis already presented in this journal that Serra Orlando is the site of the ancient city of Morgantina.² Simultaneously, further excavation of the Lower Agora and adjacent buildings to the east was carried out, and the clearance of the so-called Villa was brought nearer completion.

THE ACROPOLIS (AREA III)

The northeast tip of the long ridge on which the town is situated rises to a steep conical hill (ca. 600 m. above sea level) known today as Cittadella, a name that can be traced at least as far back as to the 16th century, where it appears on Mercator's map of Sicily.³ The denomination is probably much older, and indicative of its earlier role as the citadel of the town. The conical peak is surrounded by lower plateaus to the southwest and northeast. From the outer edges of the plateaus the ground drops steeply down to the valleys below. The south-

west plateau and its vicinity were tested with a series of trial trenches during the last week of the campaign of 1956 and it was found that the soil covering the bedrock was too thin to yield any encouraging results.⁴ The narrow top of the conical hill itself is almost completely covered by a large farmhouse built on hardpan. A cistern and remains of older walls in and below the farmhouse seem to be of mediaeval date.

Exploratory trenches were therefore dug on the northeast platform and all proved productive (pl. 28, fig. 1). The architectural remains found date mainly from four periods: the sixth and fifth centuries, the beginning of the fourth century, the third century, and late Roman Republican times. Of these periods the last is of little significance, and the next to last should be considered as a restoration phase with no real building program of its own (pl. 28, fig. 2). The archaic period introduced a building activity traceable in all the trenches, although the monuments are in a poor state of preservation. No complete house was found, but the walls, founded on bedrock or immediately above, are orientated to form a roughly rectangular system indicative of regular house plans. The foundations are of rubble masonry fairly carefully laid, and the superstructure was of sundried brick and timber. The trenches sample an area of about 80 by 60 m. within the perimeter of which the archaic walls all seem to follow the same orientation. If this is borne out by further exploration, one should be entitled

¹ The staff consisted of the author, director, assisted by Messrs. Thomas Hoving, Fred Licht, Kyle Phillips, Miss Lucy Shoe, Miss Helen Woodruff, Mr. Charles Williams, architect, Mrs. Thomas Hoving, Mrs. Erik Sjögqvist, Mrs. P.-N. Nilsson, and Mr. P.-N. Nilsson, photographer. Sig. Antonino Giucastro represented the Soprintendenza alle Antichità, Siracusa, and acted as foreman and Sig. N. Di Tommaso of the Siracusa Museum was our restorer. The expedition is greatly indebted to the authorities of the Italian Antiquities Service, and above all to Professor L. Bernabò Brea, Soprintendente alle Antichità della Sicilia Orientale, for much valuable help and encouragement.

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² K. T. Erim, *Morgantina*, *AJA* 62 (1958) 79-90.

³ G. Mercator, *Italiae Sclavoniae et Graeciae tabulae geographicae*, Tab. 15, *Siciliae Regnum* (Duisburg 1589). Cittadella is wrongly placed in relationship to Aidone, a mistake rectified on Giacomo Cantelli's map *Isola e Regno di Sicilia* (Rome 1682). I am indebted to Mr. Howard C. Rice, Jr., and Mrs. H. Fantova, who gave me these and other bibliographical references.

⁴ A fragment of an archaic terracotta revetment plaque was picked up on the surface here by H.M. the King of Sweden, who took part in the work of the first campaign in the fall of 1955. It indicated an early settlement on the Cittadella, but this year's results seem to show that, where found, it was far removed from its original location. It must have been carried from the northeast plateau some 300 m. distant.

to presume the existence of a roughly rectangular street grid.

The architectural debris covering the foundation walls, at places to a depth of more than 1 m., consisted mostly of decomposed mud brick and contained architectural terracottas. Edged pan tiles and curved cover tiles are abundant, as well as several fragments of large ridge pole tiles. Many of the latter are painted in broad strokes of purple, black and brown, to form simple patterns such as the broken meander, bordering lines, and oval leaf-shaped ornaments (pl. 28, fig. 3). A complete unpainted specimen has a length of 0.59 m. Several antefixes of different types and sizes came from the same layer. At least three types of Gorgoneia are represented; all are mold-made and some of them subsequently modelled. They do not conform to any known mold and they are most probably of local manufacture, including probably the original mold (pl. 28, fig. 4 a-c). Their nearest stylistic parallels are found in Syracuse and their date seems to cover the period between 550 and 530 B.C. Another unique type shows a female head, probably that of a maenad. The modelling is good with full rounded forms and the paint is bright and well preserved: black hair, eyebrows, lids and lashes, and red lips and dots on the cheeks. This type is the oldest so far found in Morgantina and seems to date from the 570's B.C. (pl. 28, fig. 5). Its style is Ionic and may indicate the Chalcidian colony of Katane as its place of origin.

A fragment of a large Gorgoneion acroterion belongs likewise to the second quarter of the sixth century. Only a few insignificant fragments of sima were found. It is too early to suggest to which specific buildings these various fragments belonged, but it seems beyond doubt that some of them must have been sanctuaries of the type we know from Monte Bubbonia, Monte Saraceno and other places in the hinterland of Gela.⁶ The only measurable building of archaic date is situated in Trench 3. It is an oblong one-room structure with an anta at the northwest end, and terminates to the southeast in an apse. Its total length, in its present poor state of preservation, is 9.35 m. The surprising shape should be noted and it is to be hoped that further exploration may determine its character.

⁶ D. Adamesteanu, Inspector of Antiquities at Gela and untiring explorer of this region, has accumulated an amount of evidence illustrating the case: for Monte Bubbonia and Monte S. Mauro, see *ArchCl* 7 (1955) 179-186; for Monte Saraceno, *ibid.* 8 (1956) 121-146, cf. his bibliographical footnotes given

A small bronze figurine of Herakles, possibly of local make, was found in a mixed context at a place where a Roman wall had been sunk through the archaic debris. It served as an appliqué and its upper end is in the form of a ram's head. The strict frontality and ornamental details assign it to the latter half of the sixth century (pl. 29, fig. 6).

Three early Syracusan tetradrachms (ca. 490-480 B.C.) were found in such stratigraphical contexts that it can be deduced that the destroyed house to which they belong had a second storey (pl. 29, fig. 7).

The pottery associated with the archaic strata is mainly of four kinds: Attic imports, late Corinthian imports, indigenous Siculan mat-painted ware of Orsi's types Siculan III and IV, and finally a ware which imitates Attic forms and glaze, but still retains an easily distinguished character of its own. This last category represents, I submit, the local pottery of the early Greek colonists, and in that respect is comparable to the architectural terracottas together with which it is found.

This early settlement went through a complete and violent destruction by fire, traceable all over the site in the form of heavy layers of ash, carbonized matter and half-baked mud brick. The fact that several well preserved vases were found in the corner of one of the rooms bears witness to the suddenness of the catastrophe (pl. 29, fig. 8). The latest datable sherds in the deposit are some Attic red figure fragments from about 460 B.C. Thus the end of the archaic settlement is approximately dated. It should be remembered that this date coincides very well with the historical tradition of the capture and destruction of Morgantina by the indigenous Siculan forces under the leadership of Ducecius in 459 B.C.⁷ After this serious setback Morgantina lost so much of its independent importance that, in the congress of Gela in 424 B.C., it could be pawned by Syracuse to Camarina for a sum of money.⁸ The period of decay lasted to the end of the century when the site came to life again, as testified by renewed building activity. Dionysius of Syracuse put an end to Camarina's lordship over the town in 397 B.C. and brought the city back into the sphere of Syracusan interests.⁹ This event may have been the incentive that brought about the

on 145-146.

⁶ Diod. Sic. 11.78.5.

⁷ Thucyd. 4.65.1.

⁸ Diod. Sic. 14.78.7.

revival. The fourth century houses, which differ only slightly in orientation from the archaic ones, are large and relatively well built. Two of the houses are sufficiently excavated to permit a preliminary description. They are placed along a street and have a common separating wall. One enters a courtyard with rooms placed around three of its sides. Right angles are rare. The building material was sundried brick on high rubble foundations. These two houses were restored in Hellenistic times, as can be seen by raised floor levels and repairs of the stucco on the walls, but they seem to have been continuously occupied until the beginning of the second century B.C., when they were abandoned. The few Roman walls which cut through the debris should probably be dated after the First Servile War.

When exploring a stretch of the fortification wall of the acropolis in the north slope of Cittadella's conical hill, some 250 m. west of the houses just described, the stratigraphy revealed remains of a settlement dating from before the Greek colonization of Morgantina in the sixth century B.C. The area explored measures only some 12 x 8.5 m. and much information has still to be gathered before permitting any definite conclusions. What can now be said with certainty amounts to the following. The fortification wall was never anything more than a low footing of rough ashlar blocks, at present remaining *in situ* to the maximum height of three courses. They were laid on top of a layer of debris, and would have served as the footing for a palisade or earthwork. The layer on which they rest contained a few house walls associated with much indigenous archaic pottery and some very good specimens of Attic black figure ware from about 550 B.C. The fortifications, still archaic, belong therefore to the later part of the sixth or the beginning of the fifth century B.C. The archaic house was built on a levelled-off layer of debris containing characteristic pre-Greek Sicilian pottery. Especially characteristic is the gritty buff ware decorated with red fan-shaped ornaments on cream-colored ground,

as exemplified in Gela,⁹ Butera,¹⁰ and many other places, and there known as "decorazione piumata" or "decorazione a flabelli" (pl. 29, fig. 9c). This ware, which is variously dated from the tenth to the seventh century B.C., was accompanied in the upper part of the stratum by some fragments of so-called S. Angelo Muxaro ware, a fine gray pottery decorated with stamped ornaments (pl. 29, fig. 9 g-h).¹¹ The lower part of the stratum revealed the floor of a hut with a hearth and a mill stone *in situ*. While the upper part of the stratum has shifted down from the steep slope above to a considerable extent, its lower section was intact. The painted and the stamped wares were very rare on and immediately above the hut floor, and the bulk of the sherds here collected was coarse hand-made ware with occasional incised ornaments. A great amount of obsidian and flints were also found here.

Below the hut floor down to the bedrock was an accumulation of cultural earth ca. 0.4 m. deep. No architectural remains can be assigned to it, but the pottery it contained is very revealing. The greater part of it is of a coarse undecorated type, but intermingled with this were sherds of the type that Bernabò Brea appropriately calls Ausonian II, a ware of Apennine type recognized by him on the Lipari Islands, and datable to the twelfth and eleventh centuries B.C. The horned handle with an animal protome is particularly characteristic. Open bowls of bright red burnished ware with angular outline and flaring rim belong to the same repertory as does the conical flat-bottomed spindle whorl (pl. 29, fig. 9 a-b, d-f). This is the first time that such pottery has turned up in bulk in Sicily proper with the exception of Milazzo, the bridgehead of the Lipari on the north coast of the island.¹² Its appearance in Morgantina should be connected with the foundation myth of our city as related by Strabo. When discussing the colonization of Rhegium by Chalcidians and Messenians he states (6.1.6): "According to Antiochus, the Siceli and the Morigetes had in early times inhabited the whole of this region [i.e. Calabria], but later on,

⁹ D. Adamesteanu in *NSc* Ser. 8, Vol. 10 (1956) 284, fig. 4.

¹⁰ D. Adamesteanu, "Butera, a Sicilian town through the ages," *Archaeology* 10 (1957) 166-173, particularly 172, fig. 12.

¹¹ L. Bernabò Brea discusses with full bibliography the characteristics and cultural implications of this ware in his fine paper "La Sicilia prehistórica y sus relaciones con Oriente y con la Península Ibérica" in *Ampurias* 15/16 (1953/54) 137-213, particularly 208-209.

¹² L. Bernabò Brea and M. Cavalier, "Civiltà preistoriche delle Isole Eolie e del territorio di Milazzo," *Bull. Pal. It.* N.S., X,

Vol. 65 (1956) 1-99. See particularly p. 72ff and p. 75, fig. 47, p. 77, fig. 48 and chronological chart opposite p. 98. It should be noted that the specimens from Morgantina correspond to the earlier phase of Ausonian II. The fragments from Morgantina are comparable to fig. 47 a and c. Note the presence of an early specimen of the jars with "decorazione piumata," fig. 47g. In his farsighted and important article Bernabò Brea ingeniously foresees the appearance of this ware in Sicily proper. See pp. 97-98. Cf. L. Bernabò Brea, *Sicily before the Greeks*, 140-147 (New York 1957).

being ejected by the Oenotrians, had crossed to Sicily." In his next chapter he relates how the mighty Syracusans did not permit these immigrant Italic tribes "to lay hand on the seaboard, but were not strong enough to keep them all away from the interior." He continues: "Morgantum, it is reasonable to suppose, was settled by the Morgetes." Pliny (*Nat. hist.* 3.71) also places the original home of the Morgetes in Bruttium. Their eponymous hero Morges belongs to the same group of mythical city founders as Aeolus, the colonizer of the Aeolian Islands and the founder of Lipara. Of Aeolus' numerous sons three settled in Sicily.¹³ The mythology seems to vindicate a more or less continuous stream of Italic settlers coming into Sicily, a stream that sometimes used the Aeolian Islands as a stepping stone on the way. Morges with his Morgetes was one of the founding fathers. The appearance of the Apennine-Ausonian ware at our site gives additional strength to the identification of Serra Orlando as Morgantina.

In the steepest part of the northeast slope of Cittadella a necropolis was located (pl. 29, fig. 10). It is called Necropolis II.¹⁴ Three rock-cut chamber tombs, partly opened and completely plundered, were cleared out, and showed some interesting architectural features. Through a stepped *stomion* one enters a fairly regular saddle-roofed chamber. The dead were placed on rock-cut benches provided with a ledge at the head end, or in shafts, or in sarcophagus-like recesses. A fourth tomb, similar to these, was found to the south (pl. 29, fig. 11). Due to the fact that it had partly collapsed in antiquity it had practically escaped the plunderers, and yielded a rich harvest of vases and various objects of bronze and silver. The ceramic *facies* is identical with that encountered in the archaic settlement; late Corinthian (pl. 30, fig. 12), Attic black figure (pl. 30, fig. 13), indigenous Siculan (pl. 30, fig. 14), and the colonists' own ceramic products (pl. 30, fig. 15), form the four groups of pottery found. The bulk of the material can be dated to the decades between 530 and 500 B.C., with some specimens possibly slightly later. The Attic black figure ware is of a quality inferior to that found in the contemporary settlement, and consists mostly of lekythoi with Dionysiac or banquet scenes (pl. 31, fig. 16). In the Corinthian group there is one globular aryballus

among a majority of skyphoi, all of a rather poor quality. Among the silver objects one should mention hair ornaments of elaborate spiral shape, found close to the male bodies, and fibulae.

Before the collapse of the tomb surface water had penetrated and caused most of the vases to float around. A precise distribution of the finds among the subsequent burials is therefore not feasible. The skeletal materials had disintegrated, but at least six burials had taken place in the tomb; one in a rock-cut sarcophagus at the rear end, two in a shaft in the floor, and three on the floor of the chamber. The recorded number of burial gifts in the tomb was 228, to which should be added more vases, yet to be restored.

THE SANCTUARY OF DEMETER AND KORE (AREA IV)

Another area, investigated this season, and situated on a hill some 300 m. to the northwest of the agora just inside the northern city wall, brought to light the remains of a sanctuary (pl. 31, fig. 17). It is a curious and very irregular structure, not yet completely excavated. It has suffered considerably by the fact that a house of the Roman Republican period was built (probably in the late second century B.C.) above part of the sanctuary. Further damage was caused by late agricultural retaining walls, partly built with stones taken from the ancient buildings, and in one place founded on so deep a level that its bottom layer cut through one of the altars of the sanctuary.

The complex consists of a small central courtyard off which lies a roughly square room, dominated by a large altar in the form of a column (pl. 31, fig. 18). The core of the column is made of rubble masonry held together by mud and lime mortar. Its surface is finely finished with a thick layer of stucco of high quality worked into a fine base molding. The stucco of the square plinth was painted red while the column itself was yellow. Adjacent to the central courtyard, but screened off from the same by a wall, is a larger court containing a similar but larger columnar altar. On the borderline between the two courtyards is a rock-cut cistern, the inside coated with stucco cement, and provided with an overflow basin directed into the small court. The large altar is in its present form later than the small one, as is clearly shown

¹³ This story is told at some length by Diodorus in 4.67 and 5.7-8.

¹⁴ Cf. *AJA* 61 (1956) 158. Necropolis I is the Hellenistic burial ground west of the city.

by the difference between the moldings.¹⁵ The actual date of the small altar is the third quarter of the fourth century B.C., while the large one may be a century and a half later. It is by no means sure that it had not an earlier predecessor, contemporary with the small altar.

The fact that one altar—the small one—was under a roof while the other was under the open sky requires an explanation. It seems that the roofed-in altar must have been dedicated to a chthonian and the hypaethral one to an Olympian deity. The association of two such deities in one and the same sanctuary is meaningful only if the two were Demeter and Kore. Sicily is full of such sanctuaries.¹⁶ Moreover, Morgantina is close to the most famous of them all at Henna, and Lacus Pergus, the present Lago di Pergusa where the myth tells us that Kore was carried down to Hades, is still closer to our site. It is thus quite appropriate that Morgantina should have a sanctuary dedicated to the protecting deities of the region. The hypothesis is further confirmed by the character of the votive gifts accumulated in the sanctuary. Before dealing with them, a brief description should be given of the rest of the architectural lay-out. The west side consists of a row of rooms facing a street whence a narrow corridor entrance leads to the central courtyard. A system of drains, leading out to the street, carried off humidity and surface water accumulated in the courtyards. In the rooms which were used as workrooms and storerooms, a set of pithoi was found, smashed but *in situ*, as well as installations for pressing oil and wine and grinding corn. Possibly some of the rooms were used as living quarters for the temple attendants. To the north the ground rises considerably toward the city wall and the architectural remains are damaged beyond clear comprehension.

The bulk of the votive deposit was found around the altars. Those in the Kore chapel were particularly plentiful thanks to the fact that the deposit had been sealed off by a compact layer of roof tiles fallen from the collapsed superstructure. Even if the state of preservation leaves much to be desired, the covering layer of tiles was intact and had prevented any later violation of the deposit. The other rooms of the sanctuary and the central courtyard also yielded an amount of votive gifts in the form

of figurines and vases, most of them smashed and many of them incomplete. It should be noted that fragments of the same statuette were often picked up from a considerable area and sometimes from different rooms. This circumstance goes to show that neglect and partial destruction marked the last period of the sanctuary's existence.

At present only samples can be given of the rich finds. The Kore chapel yielded the oldest of the figurines. Among these should be counted a head (inv. 57-721, pl. 31, fig. 19) about half life-size and representing the goddess herself, wearing a polos and taeniae and with the characteristic heavy pendent earrings. Style and features echo clearly the outgoing fifth century, a date that should be suggested at least for the mold. Slightly later, but still very classical, is a fragmentary life-size head (inv. 57-1311) found in the cistern but originally belonging to the Kore chapel. It is also a Kore head worked with a sculptor's tool after it came from the mold. The polos and better part of the taeniae are broken off. Still to the early group and datable to the first half of the fourth century belongs a bust of a veiled devotee carrying a dove in her right hand (inv. 57-2052, height 0.245 m.).

The majority of the finds belong to the third quarter of the fourth century. Among them should be mentioned a bust somewhat under life-size of a woman (inv. 57-2050, pl. 32, fig. 20) in a high-girt chiton and melon coiffure, interesting particularly because of the many traces of coloring still preserved; also a statuette, 0.62 m. high, of a priestess with polos and taeniae and with her right hand stretched out as if offering a libation (inv. 57-806, pl. 32, fig. 21). The rich drapery adds to the three-dimensionality of the figure. One of the few male statuettes found (inv. 57-719, height 0.36 m., pl. 31, fig. 22) resembles an Apollo Musagetes but may be a youthful Dionysus or a male companion of the goddesses.¹⁷ A second life-size female bust (inv. 57-2060) was recovered in several pieces from the cistern.

Three figurines of devotees should also be mentioned (inv. 57-809, 57-2053, 57-2054, pl. 32, fig. 23 a-c). They are all of good quality and range in time from the end of the fourth to the middle of the third century B.C.

Further specimens can be dated to the latter half

¹⁵ Miss Lucy T. Shoe recorded and analyzed the moldings.

¹⁶ For a preliminary enumeration see Roscher's *Lexikon der Mythologie*, Vol. 2, col. 1309-1311, s.v. *Kora*.

¹⁷ Cf. the epigraphic appendix to this article, where G. Stamires individualizes a hitherto unknown deity, *Elaelinos*.

of the third century B.C. while the second century so far seems to be only sporadically represented, if at all.

Among other finds should be mentioned a remarkable silver diadem, 0.32 m. long, decorated with palmettes in repoussé work and rosettes in appliquéd (inv. 57-1166, pl. 30, fig. 24). It was found rolled up, broken, much corroded and seemingly beyond repair, but thanks to the expert services of Signora A. Cacace, of Rome, this rare piece of fourth century jewelry was saved and well rehabilitated. It was either a votive gift or a ritual headgear worn by a priestess, and kept in the sanctuary.

The accompanying pottery ranges in date from the late fourth to the late third century B.C. Many fragments of the elaborate so-called Centuripe vases were found, and a few could be restored. Some of the original coloring and even the gilded bands and edges were preserved. Black glazed ware with white paint of the so-called Gnathia-class was common and also an amount of pithos ware. One of the pithoi carries an inscription on the rim (see Appendix) while a Gnathia bowl carries the non-revealing graphito ΔΑΙΜΟΝΟΣ.

THE WESTERN HILL (AREA II)

On this hill the Italian archaeologist L. Pappalardo excavated a Hellenistic house in 1884.¹⁸ Its remains are now hardly traceable, with the exception of some remnants of mosaic floors. The soil covering the top plateau of the hill is thin and a ruined farmhouse was to a great extent built by material recovered from the surrounding ancient buildings. Our explorations were concentrated on the west slope of the hill where the soil was deeper, and a trench, 3 m. wide and 38 m. long, was dug perpendicularly to the slope in a southeast-northwest direction. Several walls were found in the northwest, or lower, part of the trench. Their significance cannot be evaluated without further exploration, but it may now be said that they belong to a period contemporary with the gradual development of the agora, i.e. from the late fourth to the end of the second century B.C. In the lowest section of the trench these walls and the drainage pipes belonging to them rest on a thick accumulation of cultural earth, mostly washed down from the adjacent hills. No architectural remains are attributable to this stratum, but it holds a remarkably great percentage of Attic fifth century pottery.

The upper end of the trench revealed a mosaic

floor and the area was enlarged for further investigation. What came out was a sizeable house covering an area of some 38 by 14 m., henceforth called the House of the Tuscan Capitals (pl. 33, fig. 25). Its main entrance faces southeast and lies off a cobbled street that runs past the façade of the house (pl. 33, fig. 26). A wide entrance vestibule, flanked to the right by three rooms of equal size and to the left by the service department of the house, leads into an atrium-like room with an impluvium. The impluvium is covered by tiles and placed off center along the southwest wall. The superstructure was carried by that wall and by two brick columns in the opposite corners of the impluvium. From this oddly non-axial "atrium," doors open to the main rooms of the house and a sloping corridor leads out to a peristyle surrounded on two sides by a large reception room. The peristyle is U-shaped and its central area was never paved but probably planted with bushes and flowers. Four big rock-cut and cemented cisterns, some 7 m. deep, provided an ample water supply. Some of the floors are covered with *cocciopesto* mosaics, others with mosaics entirely made up by tesserae. The room to the southwest of the peristyle has a floor of multicolored marble tesserae forming an irregular pattern suggesting a textile archetype. To the southwest of the "atrium" lies the largest room of the house with a podium, possibly for a statue, at the rear wall opposite the loor. To the northwest of the big room and in communication with the same are two rooms with installations for oil and wine presses and for grinding corn. Some of the rooms facing the U-shaped peristyle have walls stuccoed in red, white and blue, similar to the "Incrustation Style" of Pompeii. The southeast part of the house which originally was accessible from the peristyle through another sloping corridor was later screened off and used as a separate dwelling. At this time it was provided with a small garden peristyle of its own, carried by four brick columns (pl. 33, fig. 27). Two of the limestone capitals were recovered. They are surprisingly enough of the so-called "Tuscan" order, and one of them was repaired in antiquity. In the service quarters left of the main entrance vestibule were found a group of terracotta figurines seemingly datable to the first century B.C. (pl. 33, fig. 28). A rare bronze coin in very good condition from the island of Gaulos, present day Gozo off Malta, was found in the lime incrustation of one of

¹⁸ L. Pappalardo, *La contrada di Serra Orlando presso Aidone* (Caltanissetta 1884).

the mosaic floors. It is also datable to the first century B.C. as far as can be ascertained (pl. 33, fig. 29).¹⁹ These finds indicate that the house was abandoned some time around the middle of the first century B.C. Investigations under the floors failed to yield any clue to the date of the erection of the house, but proved that the hill was inhabited in the fifth century B.C. The plausible date of the existing building is the latter half of the second century B.C.

The plan of the house shows an interesting mixture of Roman and purely Hellenistic elements. To the former belong the atrium-like central room and the peripherally placed peristyles, which were not paved but used for planting.

THE AGORA AND ITS VICINITY (AREA I)

The operations in the agora had two main objectives: to complete the excavation of the Villa, henceforth called the House of the Doric Capital, and investigate the slope between the same and the stepped area, henceforth called the Lower Agora, and to free the polygonal area of the Lower Agora from the accumulation of sedimentary material rising to a height of 4.5 m. over an area of some 750 square meters. The area between the steps and the later market, henceforth called the Macellum, was also excavated in order to clarify the relationship between them.²⁰

Between the House of the Doric Capital and the Lower Agora a house came to light which may have served as a dependency of the former. It contained four main rooms which seem to have been used mainly as storerooms. It faces a street running parallel to the slope from southeast to northwest. Still further down the slope lies a building of considerable size with a façade which overlooks the Lower Agora. In front of it runs a terrace (pl. 34, fig. 30). The building, which has to be further excavated before anything can be said for certain about its total plan and function, consists of a pilastered U-shaped peristyle with tile paving, opening toward the terrace. Rooms surround it on the other three sides. The two rooms to the northwest are older than the peristyle and were only later incorporated into the complex. This older part is contemporary with the steps of the Upper Agora and thus belongs to the initial building period in the end of the fourth or beginning of the third century. The

fine ashlar masonry and the solidity of the structure seem to designate it as a public building. The peristyle and adjacent rooms, which went through several later modifications, were added in the third century, simultaneously with the front terrace. A built drain under the peristyle leading down to the Lower Agora correlates the construction dates of peristyle and terrace.

The House of the Doric Capital was further explored (pl. 34, fig. 31). Its southern quarters consist mainly of the service department. One room, opening to the peristyle, is of special interest because of its Greek inscription in the *cocciopesto* mosaic, a framed *Eθ ἔχει* (pl. 34, fig. 32).

The laborious task of liberating the Lower Agora from superimposed earth proved rewarding for several reasons. In addition to the monumental values created (pl. 35, fig. 33), useful information was gathered from the stratigraphy, confirming the dates suggested for the temporary abandonment and silting up of the place. Off center and toward the east side of the polygonal area there came to light the foundation layer in ashlar masonry of a platform facing southwest and measuring 7.4 by 3.7 m. A second row of stones, now missing, was drawn in about 0.3 m. from the face of the lower row, so that one can conclude that the platform was stepped. This circumstance, as well as the position and general character of the structure, strongly suggest that we have to do with a speaker's platform, a bema. The hypothesis, earlier expressed,²¹ that the Lower Agora served as the meeting place of the public assembly seems thus confirmed. Close to the center of the Lower Agora the otherwise trodden floor of the square was solidified into a real pavement of lime cement. In this zone an irregular row of ten post holes appeared. I am unable to suggest a reasonable explanation of their purpose.

The great Roman drain sunk into the alluvial deposits which silted up the Lower Agora in the beginning of the second century B.C. was explored and removed. This drain is identical with a drain visible in the northwest corner of the Upper Agora at a distance of about 130 m. It provides a welcome item of structural correlation between the building periods of the Upper and Lower Agora.

The clearance of the area between the Macellum

¹⁹ I thank Miss M. Thompson of the American Numismatic Society for expert help in identifying the coin and for bibliographical references.

²⁰ For the denominations Lower Agora, Later Market and Villa, see *AJA* 61 (1957) 152, 154, 156.

²¹ *AJA* 61 (1957) 152.

and the big steps, and the excavation of the remaining part of the Macellum itself yielded some surprising results. The southeast corner of the Macellum was built over an oblong stepped altar lined up with remains of a rough temenos wall founded on the rock. A twin altar of similar shape and orientation was found a few meters to the south of the first one (pl. 35, fig. 34), and just to the southwest are the foundations of a small temple in antis (pl. 35, fig. 35). This is the first temple of regular Greek plan found in Morgantina. Temple and altars preceded in time not only the Macellum, but also the steps of the Lower Agora. It is still hard to determine their absolute date but it seems reasonable to suggest that they were built in the beginning of the fourth century B.C., if not earlier. No finds were made around or in the altars. The temple was probably desanctified in the second century B.C. A line of heavy bricks was placed on edge blocking the inner doorway and on the floor of the cella were found several coins, of which one was a Morgantina issue of about 340 B.C. and another an example of the Hispanorum issues. The latter indicates the date of the desanctification.

The southwest terrace wall (J/K-13/14, pl. 35, fig. 36) discovered in 1956 was laid free in its entirety this year. It can now be stated that even its northern branch was provided with regular buttresses in conformity with the south part. The structure as a whole is probably Agathoclean (pl. 35, fig. 37).

Clearing operations were also carried out in the northwest corner of the Upper Agora (E/F-6/7, pl. 35, fig. 36).

A postern gate in the city wall to the northwest

of the Agora (A/B-1/2, fig. 36) was located and excavated.

Finally, another house, partly laid bare in 1956 (T/U-11/12, fig. 36), was further explored. It will hence be referred to as the House of the Griffin because of a fine but badly destroyed emblem mosaic with the remains of a polychrome representation of the mythical animal decorating its main room. It is still too early to discuss its plan, but it seems to be a peristyle house of a type similar to that of the House of the Doric Capital.

OTHER FINDS

Among the finds from Area I the coins continue to play an important role. Seventy-seven new Hispanorum coins and four earlier issues of the Morgantina mint are of special interest. Other coins of interest are some archaic silver coins from Gela, a fourth century Syracusan silver coin and a good crop of Roman denarii from the second century B.C.

A fragment of a 2/3 life-size archaic terracotta head was found in the area of the public building and a very good "fish plate" of fourth century red figure ware came from the zone to the northwest of the House of the Doric Capital. From a cistern in this very house comes a welcome harvest of broken but complete pots, providing us with complete forms of the household and storage pottery of the time preceding the building of the house.

From Area IV just outside the Sanctuary of Demeter and Kore came a hoard of terracotta mask medallions all in fragmentary state. They must await restoration before evaluation.

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APPENDIX

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Before the current Princeton University excavation at the unknown town on Serra Orlando, near the modern village of Aidone (ancient Morgantina?), there were only eight known Greek epigraphical texts from the site, all in fragmentary

condition. They are published by P. Orsi, six in *Rivista di storia antica*, n.s., V 1900, pp. 52-54, nos. 21-26, and two in *Notizie degli scavi*, IX 1912, pp. 451-454 (the latter with transcription and commentary by D. Comparetti).¹ During the 1957

¹ Four of these are on thin laminae of copper dealing with the same subject and perhaps are fragments of the same original document; one is on bronze and one on a silver tablet, one on a brick, while one more, in a mosaic, was found during the

season of 1956 (pl. 26, fig. 38, and *ILN*, November 9, 1957, p. 788). For better republications of some of these texts see D. Comparetti, *Annuario della R. Scuola Arch. di Atene*, I 1914, pp. 113-118, V. Arangio-Ruiz and A. Olivieri, *Inscriptiones*

Princeton campaign the following text, an incised inscription on the lip of a large pithos, came to light. Because of the scarcity of inscriptions from this town, a scarcity which is rather general for the whole island of Sicily, the new text is welcome in spite of its brevity and the problems which it raises. It shows that the jar was a sacred object in the sanctuary of some local god or hero whose name it gives. Thus it is important for the topography of the town and for the information on the local cults. It runs thus: *ἱερὸς Ἐλαιελίνον* (pl. 34, fig. 38).

The shapes of the letters indicate a date in the fourth century B.C., especially the *nu* with the second vertical line shorter. However note the shape of the letter *sigma* with the exterior strokes almost parallel. Note also the unequal height of the letters and especially of the two *lambdas*. The lack of sufficient dated epigraphical material from Sicily does not allow any certainty in dating inscriptions from there.

Names of local gods and heroes or their epithets are often strange and their interpretation is difficult, since their derivation depends on local dialect forms or sometimes even goes back to the aboriginal languages of their respective districts. We cannot know if the present case is an example of such an origin.² If we assume that the second part of the text—the name of the god—is pure Greek, we must postulate that it is one word. Any attempt to divide it leads us to unacceptable results. The one-word name of the god has to be in the nominative *Ἐλαιελίνος* or less probably *Ἐλαιελίνης*. It appears to be a compound, but an attempt to interpret it raises serious difficulties. Obviously the second part is not *λίνον*—flax (or its derivative meanings), neither the more attractive *λίνος*—the song of *Linos* or the mythical minstrel *Λίνος* himself, although there is the example of his being called in compound form *Οἰρόλινος*.³

Graecae Siciliae et insimae Italiae ad ius pertinentes (Milan 1925) pp. 128-129, no. 14, 139-142, no. 17; cf. also J. V. A. Fine, *Hesperia*, Suppl. 9 (1951) 166. I feel, however, that the date given in *Hesperia*, loc. cit., to the last fragment is questionable, and that the shapes of the letters, the nature of the names, and the subject itself could place it even as early as the fourth century B.C. To these texts a few scraps from Latin inscriptions found during the first campaign of the American excavations are to be added.

² See below.

³ Sappho fr. 62 Bergk. There is not any apparent connection with the noun *ἄλινος*—dirge or the adjective *ἄλινος*—mournful, although the word *ἄλινος* with the meaning *ode of the weavers* is attested by the Sicilian poet Epicharmus, fr. 88

If we take the first element of the compound we recognize the word *Ἐλαία*—olive-tree, olive or *Ἐλαιον*—olive-oil. Since the first element does not end in *o* (as in *Ἐλαιο-τριβέτον*), the first letter of the second part must begin with a vowel, in this case an *ε* (as in *Ἐλαίε-επιφορία*). In the second element of our compound we may recognize the word *Ἐλινος* (ο and η)—vine-tendril, branch of vine, vine, and metaphorically wine, meanings which might be thought of as fitting the present context. A combination of oil and wine is in principle suitable for the name of a god who would be the patron of these products.

These products were playing an important role in the life of the inhabitants of Sicily. For the cultivation of olives there a glance at the characteristic inscriptions from Halaesa and Tauromenium republished by Arangio-Ruiz and Olivieri loc. cit. nos. 2, 4, and 8, will be sufficient. Where viticulture is concerned we have specific mentions of *vinum Murgentinum* by Cato *de agricult.* 6.4 (cf. also Varro *res rust.* 1.25; Plin. *nat. hist.* 14.46) and *vitis Murgentina* by Columella *de re rust.* 3.2. 27, quoting Celsus; cf. also Plin. *nat. hist.* 14.35. This evidence becomes significant in the light of the recent conclusion that the ruins in Serra Orlando belong to Morgantina.⁴

It is to be noted in this connection that both these products are highly cultivated in the neighborhood of the excavation and that they are the main source of livelihood for the nearby inhabitants. It is true that the word *Ἐλινος* occurs in such later authors as Nicander *Alexipharmacata* 181, Maximus the astrologer *περὶ καταρχῶν* 492, Oppianus *Cynegetica* IV 262, Dionysius the periegete 1157, and Nonnus *Dionysiaca* XII 299. Lack of evidence from earlier times could be attributed to the paucity of literature on relative subjects from earlier times. In fact still later lexicographers⁵ attest the listing of

Olivieri. However Kaibel has found reasons to believe that the comedy *Ἀτακάραι* in which the word occurred could not be the work of a Sicilian poet; cf. A. Körte, *R.E.*, s.v. *Phormis*, and A. Olivieri *Frammenti della commedia Greca e del mimo . . . I* (Naples 1946) 6.

⁴ See E. Sjöqvist, *ILN* loc. cit. (note 1), K. Erim, *AJA* 62 (1958) 79-90, and E. Sjöqvist, *supra*.

⁵ *Etymol. Genuinum* p. 107 Miller; *Etymol. Magn.* p. 330, 39 Gaisford. Derivatives of the word (*Ἐλαιοφόρος* and *Ἐλινότροπος*) are found in the *Hymn to Isis*, *IG XII 5*, 739, line 18 (1 cent. B.C.; cf. W. Peek *Der Isishymnus von Andros* [Berlin 1930] 15, 36, 93, and for the date p. 101). See also G. (=W.) Kuchenmüller, *Philetæ Coi reliquæ*, Diss. (1928) 102-103, fr. 43.

the word in early lexicographical works: the Γλῶσσαι of Philetas (fr. 11 Bach) and the Ἐπυμολογούμενα (?) of Apollodorus (fr. 214, *FHG* I 465; 247, *FGrH* 244). All this shows that the word was already in use in earlier times. Perhaps it was better known in Sicily.⁵ In favor of such an explanation is the evidence about Aristaeus, a deity widely worshipped around the ancient world as patron of various agricultural products, among them oil and wine, and one whose cult was, in Sicily, especially connected with oil-production; his statue stood in a temple at Syracuse, and was abducted by Verres. He is described as πολλῶν ὄνομάτων μορφὴ μία.⁶ However, besides the rather unsatisfactory solution from this uncommon word there is another more serious difficulty. The compound so made is one of the type known as *dvandva*, so rare in ancient Greek that the introduction of a new one becomes problematical and is to be treated with great caution.⁷

I note finally that according to Stephanus of Byzantium *s.v.* Ἐλινοί, a town of Sicily had that name.⁸ Nothing is known about it and its location. If our name is somehow connected with this town we would expect an adjective derived from it to designate the god. An explanation would be that the god was named after the town by an etiological myth on the analogy of several such examples as Gortys, the town, and Gortys, the founder. But there remains the difficulty of the first part of the compound and also the lack of topographical information about the town Elinoi itself. Therefore it would be unjustifiably rash to find in the newly excavated ruins the town Elinoi, especially in view of the excavators' conviction that they are the ruins

⁵ A collection of *glossae* from Sicily is in G. Kaibel, *Comicorum Graecorum Fragmenta* (Berlin 1899) 212-218; cf. 198-202.

⁶ Diod. Sic. IV 82.5: παρὰ τοῖς κατὰ τὴν Σικελίαν οἰκοῦσι διαφερόντως φασὶ τιμηθῆναι τὸν Ἀρισταῖον ὡς θεὸν καὶ μάλισθ' ὑπὸ τῶν συγκομιζόντων τὸν τῆς Ἑλαστρίας καρπόν; IV 81, 2: (μυθολογοῦσει τινες) τοῦτον — τὸν διαιών τὴν κατεργαστὸν διδάξαι πρῶτον τοὺς ἀνθρώπους. (Source of Diodorus is Timaeus of Tauromenion; cf. J. Geffken, *Timaeus' Geographie des Westens* [Berlin 1892] 168. R. Laqueur, *R.E.*, *s.v.*) Cicero in *Verr.* IV 57 (128): ex aede Liberi simulacrum Aristaei non tuo imperio palam ablatum est? Aristaeus, qui, ut Graeci ferunt, Liberi filius, inventor olei esse dicitur, una cum Libero patre apud illos eodem erat in templo consecratus; cf. *de nat. deor.* III 45. See E.

of Morgantina, a town better known from literature and so more fitting to the importance of the ruins found at the place.

The search so far leads us to inadmissible solutions. As it is well known, epithets of gods, later becoming names, usually are adjectives. The name of our god has, in fact, adjectival form (Ἑλιελήτης). There is no word which will constitute the theme of the adjective and even if we take it to be compound we find fitting only the words Ἑλα = ἥλιος + αὐγή + καῦμα and Ἑλη—the sun's heat. These meanings would have been good (cf. Ἐλιεύς, title of Zeus in Thebes, Hesych.), but the first part of the supposed compound is left without explanation.

Mention has been made above of the possibility that the name took its origin from some other language. I note for comparison the lake *Velinus* etc.,⁹ the tribe and the town of Gallia *Helinium*, and the tribe of west Sicily, *Elymoi* or *Helimoī*¹⁰ in Latin and the form *elina* for *Helene* in Etruscan.¹¹

I have not seen the work of V. M. Amico, *Lexicon topographicum Siculum* (Palermo and Catania 1757-1759, 3 vols.) or its revision by G. di Marzo, *Dizionario topografico della Sicilia* (Palermo 1858, 2 vols.). Nothing relevant is in I. Scaturro, "La religione dei Siculi e dei Sicelioti," in the volume *Studi di antichità classica offerti . . . a Emanuele Ciaceri* 1940, pp. 269-280.

I express my thanks to Prof. E. Sjöqvist for entrusting to me the publication of this firstling of epigraphical finds in the excavations of Serra Orlando, to Prof. H. Cherniss for encouraging discussion of the problem, and to Mr. Harry Avery for correcting my English. *Caveat lector.*

Ciaceri, "Contributo alla storia dei culti dell' antica Sicilia," in *Annali della R. Scuola Normale Superiore di Pisa, Filos. e filol.*, XI 1896, pp. 78-81, and Hiller von Gärtringen, *R.E.*, *s.v.* Aristaios I.

⁷ The word Ἐλινος—*mournful poem* listed in Stephanus' *Thesaurus* from Athenaeus XIV 618d, which anyhow would not help in the interpretation, is nothing more than an erroneous reading in one of the manuscripts for Ἐλινος.

⁸ One manuscript gives the name to a river of Sicily. Powell accents Ἐλινολ.

⁹ See G. Radke, *R.E.*, *s.v.*

¹⁰ Hülsen, *R.E.*, *s.v.* Elymoi.

¹¹ Cf. Fiesel in Roscher's *Lex. d. Myth.*, *s.v.* velena.

Fifth Century Intentional Red Glaze

MARIE FARNSWORTH AND
HARRIET WISELY

PLATES 36-37

During 1938 and 1939 one of us (M.F.) spent two seasons as Chemist for the Agora Excavations in Athens. At that time certain chemical and physical properties of the black and intentional red glazes were investigated. These showed that the chemical composition of the two glazes is very similar, the essential difference being that the iron is reduced in the black and oxidized in the red glaze. The Second World War and other duties caused that study to be dropped. The actual reproduction of the glaze is probably a more rewarding endeavor and this was convincingly shown by Dr. Schumann^{1,2} for the black glaze. He successfully reproduced the Greek black glaze by deflocculating (peptizing) a suitable clay and using only the finer particles for his glaze. This was then applied to a leather-hard tile and subjected to a three-stage single firing (first oxidizing, then reducing and lastly reoxidizing). His work met with immediate acceptance by archaeologists interested in the technical aspects of Greek pottery and has been thoroughly checked by other workers.

Dr. Schumann did not particularly study the fifth century red glaze and the widely used red accessory colors. When asked about the red glaze, he suggested that perhaps it was never reduced, i.e., the furnace was cooled and the intentional red glaze applied to the vase at the end of the reducing cycle and never subjected to the reducing fire. Two questions immediately arise: (1) does the red glaze appear to be applied after the black and (2) are there other ways of reproducing the red glaze more in line with the usual Greek ceramic practices? Miss Richter^{3,4} answered the first question in the affirmative.

Our research, undertaken after extensive conversations with several archaeologists, concerns itself with the second question and is an attempt to show that two firings are not really necessary for the intentional red glaze. It seemed unlikely to us that the Greeks who, even in prehistoric times, had

used red as an accessory color would suddenly adopt an awkward and complicated method of firing foreign to their many years of experience. On the basis of this reasoning we undertook a series of experiments designed to show that both red and black glazes could be produced in a single firing operation, carried out in three stages, first oxidizing, then reducing and finally reoxidizing. Convenience dictated the use of a modern electric kiln but its normally oxidizing atmosphere was altered at will by the introduction of dampened sawdust to produce a reducing atmosphere in emulation of the Greek wood-fired kilns.

Since the black glaze had already been successfully reproduced, our concern was primarily with the red intentional glaze. In order to work under conditions similar to the Greek potter, however, it is necessary to produce black glaze with the red and we naturally have made some observations about the black. The black glaze we find rather simple to reproduce; the red glaze is somewhat unpredictable but becomes more understandable with additional experience. Modern potters call iron a chameleon and we are inclined to agree, particularly where a red color is involved. In spite of many false steps and difficulties we are now able to reproduce satisfactorily intentional red glaze and we feel certain that our method is essentially the method used by the ancient Greeks. Also, just as the good 5th Century black glaze is a refinement of the earlier blacks, so is the intentional red glaze of the 5th Century a refinement of the extensively used red accessory colors. We believe the improvement in the quality of the black glaze had to come first, for the intentional red can only be produced in conjunction with a high quality, low sintering black. Briefly, the red intentional glaze is made by adding ochre (miltos) to a good black. On the same tile the black glaze remains black, while that with the added ochre turns red when the regular three-stage, oxidizing, reducing and again oxidiz-

¹ T. Schumann, *Ber. dtsch. Keram. Ges.* 23 (1942) 408-26.

² T. Schumann, *Fortsch. u Fortschr.* 19 (1943) 356-58.

³ G. M. A. Richter, *BSA* 46 (1951) 143-50.

⁴ G. M. A. Richter, *Netherlands Yearbook for the History of Art* V (1954) 127-36.

ing, firing cycle is observed. The black has sintered, i.e., has on heating become a coherent solid mass without thoroughly melting while the ochre-containing glaze remains porous and is easily reoxidized.

A number of unsuccessful experiments were carried out before we finally prepared a satisfactory intentional red glaze. Many of them are interesting and add to our knowledge of Greek pottery and will be discussed later. First, however, we shall describe the preparation and firing of intentional red glaze (together with the accompanying black) and various factors which affect it. Our specific problem was to find the step between accessory reds (matt and often purplish red) and intentional red glaze (coral and fairly shiny) and thus show that two separate firings are not required for either.

The obvious differences between the intentional red glaze and the accessory red color are the gloss of the glaze and its rather different color, often spoken of as sealing wax or coral red. Actually, the intentional red glazes in museums (scarce) while not identical in color and texture can generally be called sealing wax red, but the Agora Excavations have in their collection examples which are far from the desired color. Some can best be described as muddy brown. We are inclined to believe that the Greeks met with many failures in making this ware and this probably accounts for its scarcity and the relatively short period over which it was produced. It also seems probable that not many pottery shops took the final step from accessory red color to intentional red glaze. The stemless cup (pl. 36, fig. a) is the most common shape and always had, insofar as we are aware, the ring design on the base which shows in the photograph. This would indicate, in modern times at least, the product of a single shop.

It is generally assumed that Greek pottery is fired in the range 900-1000° C. In our experience, 950° C is about the highest temperature to which a good black can be fired but it might be possible to increase this temperature somewhat if a coarser black were used. This firing range would be satisfactory for accessory reds and ochre washes, i.e., both would stay red under such conditions; but to make intentional red glaze, it is first necessary to prepare a black which can be fired at a lower temperature. For this purpose one should secure an iron-bearing plastic clay low in alkaline earths. Almost any clay which meets such specifications

should be suitable for making black glaze. To make a fairly good black, settling a well deflocculated (peptized) clay overnight in order to get rid of the sand and coarser particles is sufficient. Such a black, if prepared from a good quality clay, is a good starting point for the intentional red. A black settled over a longer period is also satisfactory for making intentional red. Theoretically, it might require slightly more ochre but the additional amount required does not seem to be prohibitive. The ochre to be added should also be deflocculated and settled overnight to remove the sand and coarser particles.

Black glazes can probably be fired in the neighborhood of 50-100° C above their sintering temperatures without undergoing material harm, but with intentional red it is imperative to hold the black at a low temperature in order not to sinter the red also. In our experience a black glaze suitable for use with intentional red must sinter below 850° C; one that sinters fairly near 800° C is preferable. This means that the black glaze must be free of all but the finest fractions of clay particles. These colloidal particles, if properly deflocculated, should stay suspended for weeks, months, or even years. In practice, we separated the coarse sand particles and then settled the 3-5 percent clay suspension in a tall liter cylinder for at least two weeks and siphoned off the top 500 ml. The suspension was then evaporated on a hot plate to a suitable consistency for application.

Insofar as we can determine by the analysis of a couple of samples of intentional red for iron, as well as from our own experiments, to make the red glaze the Greeks added enough ochre to their black glaze to bring the iron content to around 11 percent (15.75 percent Fe_2O_3). The Greeks worked by trial and error and the amount is not always the same; also, it would depend somewhat on the quality of the clay and the quality of the ochre used. The black glaze that we used for our red had 8.5 percent iron calculated on a calcined basis (i.e., as it would be in the glaze); by adding enough ochre to it to bring the iron (also on a calcined basis) to approximately 11 percent we found we were able to make a glaze with a satisfactory color and sheen (tile b, color plate). If we kept the iron as low as 10 percent, the glaze was partly black and partly red (right-hand side of tile c). The glaze on the left-hand side of the tile had no added alkali and is not, on the whole, the best possible color.

Either the red or the black glaze may be applied first to the clay body, and either may overlap areas occupied by the other. The normally higher moisture content of the black glaze and its very dense gel-like structure make it slower drying than the intentional red glaze composition, which has a higher solids content and a more open structure due to the ochre addition. For this reason it is convenient, though not necessary, to apply the black glaze to the clay body first so that it may be drying while the red glazed areas are being filled in. We have not studied or tried to emulate the skilled way in which the Greeks applied their glazes. We applied them to the smoothed tiles with a small brush. When leather-hard, the glazes were polished with a soft cloth.

Alkali is not absolutely necessary for black glaze; it does lower the sintering temperature somewhat and this is a definite advantage when firing red with the black. Most of the blacks in the color plate were made without added alkali. As far as we have been able to determine, the color of intentional red is improved by alkali. It also appears to improve the sheen of both the black and the red. In our first experiments we added some alkali to our glaze but we added too much and it tended to bubble and become rough. Thereafter, when we used it, we simply brushed it on our tiles and our glazes in the form of a ten percent solution of potassium carbonate, although toward the end of our experiments we did actually add the alkaline solution to our glazes. Tile b has alkali added to both the red and the black. Potassium carbonate would be fairly close to alkali prepared from wood ashes, which the Greeks probably added directly to their glaze in suitable amount. An extreme example of the effect of alkali on both the red and the black is shown in tile d, where the right-hand side has been brushed with a ten percent alkaline solution of potassium carbonate. The left-hand side is underfired but this tile leaves little doubt that the addition of alkali is helpful to both black and red, even if not entirely necessary.

Even after we learned to make intentional red, we were much harassed by erratic results, so much so in fact that we often felt like hanging blue beads on our furnace to avert the evil eye. We eventually found that the color and texture of both the black and the red glaze are tremendously sensitive to

the presence of water vapor during the reducing cycle, although water itself is not a reducing agent. If water (steam) was not present during the reduction, we invariably got results similar to tile f. At the beginning of this particular reducing cycle we simply used a saucer of dry sawdust which first started to burn and then smoked after the excess of air was used up. One might think this would fill the chamber of the furnace with reducing smoke and be helpful but we never found this to be true. In this particular case we continued the regular reduction cycle with wet sawdust but were never able to overcome the initial bad effect of lack of water. It took us a long time to learn that although water is very important for the black at the beginning of the reducing cycle, the black glaze will sinter and become impervious to further change. The red, however, is porous and can be harmed at any time during the reducing cycle if the correct reducing conditions are not met, i.e., if the reducing gases, among other things, do not contain water vapor.

As stated above, we fired our tiles in an electric furnace and added dampened sawdust for reduction. The Greeks would have had somewhat different conditions from ours in that a furnace filled with pots would itself produce a large amount of water since both the combined and uncombined water in clay would be given off on firing and this would amount to 15-20 percent of the weight of the pots. This quantity of water would produce a large volume of water vapor. Most of it, however, would undoubtedly be swept out by the draft. There is some evidence that the Greeks added water vapor to the kiln atmosphere during the reduction. This possibility is clearly evident in one of the votive tablets or pinakes found at Pentekuphia near Corinth, dating 650-500 B.C. which was in the Berlin Museum^{5,6} (pl. 36, fig. c). This appears to be a schematic drawing of a kiln. There are three side openings. The one shown on the left is conceivably the firing chamber while the other holds a vessel, possibly of water to make steam. The opening at the top of the illustration seems to be a draw hole as shown by the two pottery fragments next to this opening, one of which clearly has a hole for withdrawing it from the kiln during the firing.

Common, but not infallible, characteristics of

⁵ *Antike Denkmäler* I, pl. viii, no. 19b.

⁶ Gisela M. A. Richter, *The Craft of Athenian Pottery* (Yale

red intentional glaze include a semi-glossy surface when compared with the very glossy appearance of the best quality black glaze and a conspicuous tendency to peel when compared with the black of the same period or, indeed, when compared with the black of almost any period. The piece of intentional red that we used for a standard (color plate, fig. a) has been described by Miss Talcott as follows: "Stemless Kylix Glazed Black and Red (intentional difference in color) (Agora Inv. P. 9037). The cup from which samples have been taken is a deep-bodied stemless kylix with flat disk foot and nearly vertical inset lip. The lip, inside and out, is glazed a firm lustrous black—black also on the outsides of the handles and the outer edge of the foot. The insides of the handles are reserved, also the spaces between their attachments, and the underside of the foot, which has a fairly deep groove near the center, glazed; the space within the groove is decorated with a small glazed circle and central dot. The body of the cup, inside and out, is glazed 'sealing-wax red'; the red seems thinner than the black, and on the interior of the cup it is considerably less lustrous. It is much worn, and shows a pronounced tendency to peel.

"The cup was found in a small pit on the south slope of the Areopagus, in a context of the first quarter of the fifth century, not later than 480 B.C. Fragments of other cups identical in shape and technique have been found in other parts of the excavations in contexts of similar dates, i.e., ca. 500-480 B.C. The red ground of these cups seems to be exactly the same as that occasionally used in connection with red-figured decoration (cf. one such from the Agora illustrated in *Hesperia* 2 [1933] 480, fig. 9)."

The fragment, as Miss Talcott brings out, is highly polished on the outside of the cup and quite matt on the inside. The outside surface gives the appearance of having been polished after firing; a test on a small portion of the inside showed that it would be possible to polish that surface to a high degree of gloss also. Perhaps the inside was never polished or perhaps use took the gloss away. Although no actual measurements have been made, it seems doubtful to us that the red is thinner than the black.

The other piece of intentional red (color plate, fig. e) was very kindly sent to us by Mr. Peter

Corbett of the British Museum in the spring of 1957. These two fragments demonstrate the differences in color and texture of the intentional red as obtained by the Greeks. The British Museum piece looks to us as though excessive alkali was added to the black in an effort to lower its sintering temperature.

The intentional red glaze resulting from our procedure adheres well to the clay body but since it is slightly porous and less firmly attached than the sintered black glaze, it would be more vulnerable to the attack of ground water and would, in time, probably peel or disintegrate. The tendency of the red to peel as compared with the black, even when the black has misfired, is very clearly brought out in the cup in the Metropolitan Museum (pl. 36, fig. a) which has conspicuously misfired. This cup is the same shape as the cup from which our standard came. Commenting on this cup in *Corpus Vasorum*, Miss Richter⁷ says: "57a-c. RED-AND-BLACK CUP. Acc. no. 74.51.1385 (C.P. 2029). H. 5.3; D. 13 cm. Purchased with the Cesnola Collection in 1874-6 and therefore perhaps from Cyprus. Lip cracked on one side. The inside of the lip is mostly red, . . . The outside of the lip is also partly red and so is one handle and area near one attachment of the other handle; . . . They have not peeled, however, whereas the coral red on the bowl, both inside and out, has peeled in places."

The preparation of a satisfactory red glaze as described above was the last step in our series of experiments. Some of the earlier experiments and results are also of interest and should be helpful in adding to an understanding of the technology of Greek pottery.

Lack of gloss and tendency to peel first led us to believe that the particles of clay making up the red glaze (assuming it is composed of clay) were coarser than the particles of the black. It is a well-known ceramic fact that finer particles of clay or similar minerals fuse, or partially melt and sinter, at a lower temperature than the coarser particles. By separating a mineral such as clay or a related material into finer and finer particles and using the different fractions as a glaze, one goes from a matt to a brilliant glossy glazed surface when the tiles with the different fractions are fired at the same temperature.

The effect of different particle size on the nature

⁷ G. M. A. Richter, "Attic Black-figured Kylixes," *CVA* Metropolitan Museum of Art, New York, fasc. 2, p. 20 (Har-

of the glaze is illustrated in the tile with the three black glazes (color plate, tile h). The glaze at the top is our B-C black which sinters at about 870°C. The glaze in the middle of tile h was made by settling a different clay two hours; heated only to a temperature about ten degrees lower, this particular glaze is coarse enough to have reoxidized to red as we know from experience. The bottom glaze is made from the same clay as the middle but settled overnight. It is better quality but still not quite as good as the glaze at the top.

That the Greeks had trouble with different blacks is well illustrated by a vase by the Altamura painter in the University Museum, Philadelphia (pl. 36, fig. b). Here the artist apparently painted around the features, etc., with one glaze and a technician filled in the background with another. The background glaze is finer and better sintered; reduced at a slightly lower temperature the glaze around the features would have reoxidized to red and the pot would undoubtedly have found its way to the dump heap. As it is, the glaze nearest to the figures is dull rather than glossy. It should be pointed out, however, that perhaps the alkali was left out in the glaze around the features. That is, as can be seen in the color plate, tile d, adding alkali has somewhat the same effect as settling the clay to a finer particle size or raising the temperature at which the black is reduced. None of the glazes in tile h has added alkali and the differences are due entirely to particle size.

Our first experiments convinced us that it was possible to keep part of the iron oxidized (red) and part of the iron reduced (black) on the same tile, but our first effort made by separating a coarser fraction of the clay did not have much similarity to intentional red glaze. Rather early in our experiments (tile k) we made a black from only the finer fractions of the clay and a red from both the fine and coarser particles, i.e., the clay for the red was allowed to settle only overnight which, in the main, settled out the sand and quite coarse particles of clay. Using this method, however, the red was never the correct color; it was always too brown. Actually, the whole question of the color of clays fired under different conditions and with different additions is very little understood and is discussed in some detail below. What was even more troublesome from our standpoint, was the

difficulty in keeping one part black and the other red. The temperature differential between these two fractions of clay is in the neighborhood of 10°C and all too often both went black or both went red. It does not seem likely that the Greeks could control their temperatures as closely as that.

At various times during the course of our experiments many additions to change the composition and thus the sintering temperature of the clay were tried. Other additions were primarily used for the purpose of improving the color of the red. These additions included silica, iron oxide, soluble iron salts later precipitated on the clay, volcanic ash, various ochres, etc. Later we met success by adding ochre but by then we had available a better ochre and used a different technique. It can be categorically stated that we never had any success with additions that were not natural materials, mineralogically related to clay.

Shale is a mineral closely related to clay but more consolidated and thus harder to prepare, i.e., a plastic clay, when mixed with water, is easily dispersed but shale must be ground. Because of its consolidated nature, it was expected that shale would not produce the colloidal particle size present in plastic clays. It was, it is true, easier to keep red. Tile i on the colorplate, with a shale red, was reduced to 890°C, while tile k with a clay red was reduced only to 810°C. The color is, however, still unsatisfactory and no better than the sample made from clay alone. Lack of sufficient water vapor during the reducing cycle may, in part, account for the color. The top streak of black in tile k is, incidentally, made from clay while the lower streak is made from shale. Thus it is possible to make both red and black glaze from shale as well as from clay. It is doubtful, however, if the Greeks used shale. It is available in the neighborhood of Athens on the slopes of Mount Hymettus but shale requires more preparation than clay and has, insofar as we have been able to observe, no particular advantage to compensate for this extra work.

It has generally been assumed that the red accessory colors that occur so often on Greek pottery contain ochre. Miss Richter⁸ says . . . "and the red accessory color (red ochre mixed with peptized clay). . . ." Ancient treatises and literary references attest the importance of ochre (miltos) to the ancient Greeks but none, we believe, specifically men-

⁸ *A History of Technology*, Vol. II (Oxford, Clarendon Press 1956). Chapter 8, Part I, *Ceramics* by Gisela M. A. Richter,

tion it as a constituent of red accessory colors or glaze. Miss Richter⁶ discusses the red ochre wash (pp. 53-59) and gives references to the ancient literature (pp. 96-98). Seltman⁷ writes on page 13 as follows: "There still exists a treaty of the 4th Century B.C. between the people of Carthaea (Ceos) specifically renewing an older treaty which guaranteed to the Athenians the monopoly of the fine red earth, or ruddle, for which the island was famous in these days. How old the original treaty was there is no means of ascertaining, but it should be noted that about 600 B.C. Attic pottery of the fine clay from Kolias had begun to appear, and Cean ruddle was a necessary ingredient if the pots were to have the bright red-orange color which was so greatly admired."

Prof. David M. Robinson¹⁰ in his doctor's thesis on Ancient Sinope says: "Its importance as an article of trade and commerce is evident from the Athenian monopoly of the Cean product, from the sealed packages used for the Lemnian article, and from the care with which different grades of it are enumerated. The most important were the Cean, the Lemnian, and the Sinopean." Added to all this we have the evidence of the excavator—miltos is commonly found around pottery shops.

Our first experiment with ochre did not meet with success. We can attribute this lack of success to several things, but certainly one important factor was the lack of a proper ochre. At first we only bought small amounts of ochre pigments from an artists' supply store and used them without further preparation. Later, through the kindness of Mr. G. W. Phelps, Vice-President of the United Clay Mines, we secured a number of clays and ochre samples and studied them somewhat systematically. From these experiments we finally developed a satisfactory red glaze and, incidentally, learned a little about color.

It should be stated emphatically that there is a wider divergence in the colors obtained if the clay is reduced and then reoxidized than if it is only oxidized. This is shown in comparing tile b with tile l on the color plate and also tile j with tile m. Tile b is our intentional red and was applied to a leather-hard tile together with the black and taken through the three stage single firing, oxidizing, reducing and lastly, reoxidation. The red on tile l is the same red glaze but it was applied to an already fired tile and only oxidized. Applied to the

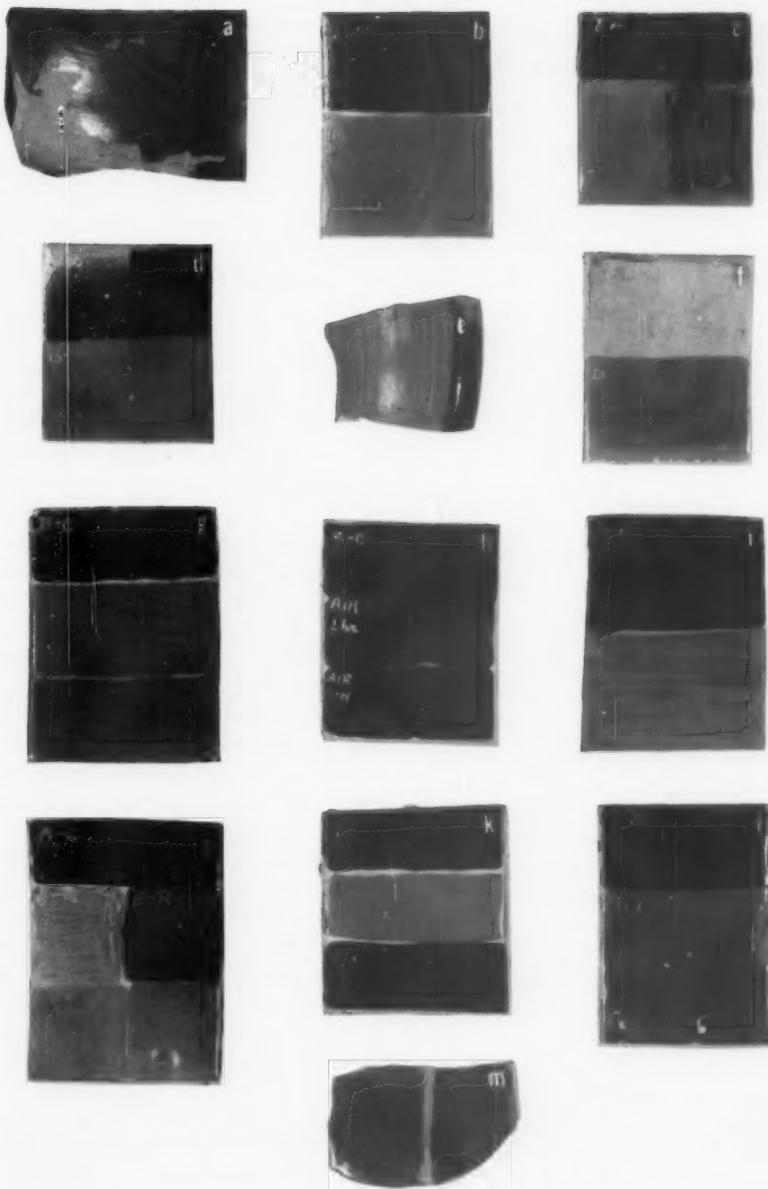
fired tile, the bond between the glaze and the tile is not very good and already it is chipping off. It is interesting to note that the black glaze on this tile, which had been reduced to 950° C followed by oxidation at the same temperature, was not harmed by refiring in an oxidizing atmosphere. In fact, if one has a well sintered, glassy glaze, it is almost indestructible.

The effect of reduction on the red color is very little understood by modern potters for it is outside their usual experience. Most clays used in pottery today are iron-free; where there is iron present, as in bricks or tiles, it is not customary to reduce. In this connection there is an interesting story in Miss Richter's book on *The Craft of Athenian Pottery*⁸ (p. 55). Miss Richter was giving a talk to a group of modern potters on the subject of Greek vases, and we quote her directly: "One of my statements which aroused considerable interest was this theory that red ochre was added as an ingredient to deepen the color of red clay. Several men came to me after the talk and said, 'I don't see why the Greeks did that; for by just slightly raising the temperature they could easily have deepened the color.'" Fortunately for archaeologists, Miss Richter was modest and decided she needed to study the technical processes used in making pots. In the above case, however, she was right and the potters were wrong, for the Greeks were limited by the nature of their glazes to a fairly narrow temperature range. Furthermore, the particular rosy red given by ochre addition can never be attained under any conditions, with clay alone, if reduction is part of the firing cycle. The Greeks often put a rich ochre wash (ochre plus clay) on the outside of the pot and then painted over this wash with their black glaze. Much of this not under the black has now worn away but it should be borne in mind that many of the red figures on Greek pottery were probably much more brilliant in ancient times than they are today.

We are, however, concerning ourselves principally with the color of glazes at this time. In this connection tile j on the color plate is of interest. This has four different applications that are entirely or partially oxidized after the regular firing cycle. The top left-hand square is made from Dalton clay which was furnished us by Mr. Phelps. This clay makes a very satisfactory black and a beautiful red, if it is never reduced. This can be seen from the

⁶ C. T. Seltman, *Athens, Its History and Coinage Before the Persian Invasion* (Cambridge, University Press 1924).

¹⁰ David M. Robinson, "Ancient Sinope," *AJP* 27, No. 2 (1906).



a) 5th Century intentional red (*courtesy Agora Excavations*); b) experimental intentional red; c) left: experimental intentional red; right: insufficient ochre; d) effect of alkali; e) 5th Century intentional red (*courtesy British Museum*); f) lack of water vapor during reduction; g) excess ochre; h) effect of particle size; i) shale; j) variation in color; k) clay without ochre; l) two fire; m) no reduction



left-hand side of tile m, where the Dalton clay was not reduced. The right-hand side of tile m is Greek clay which should be compared with the red in tile k, which is the same clay subjected to reduction. With the Greek clay the difference in color is less than with the Dalton. We were never able to make a satisfactory red from the Dalton clay, no matter what we added to it; it is satisfactory only for black.

The right-hand upper square is Ellis clay, also supplied us by Mr. Phelps. This is a high iron, high alkali clay and is actually the washings from an old iron mine in Pennsylvania. Taken by itself it doesn't look too hopeful, but with our earlier reds we found we always got a better color if we replaced some of the ochre with "Ellis." This worried us somewhat for it does not seem likely that the Greeks would have had such a clay. Later we found we could get a similar color by using a clay and ochre, if we added alkali. Apparently the "Ellis" acted as a built-in alkali.

The left-hand lower square is a mixture of Greek clay and ochre. As we learned later, this color is improved by alkali. The right-hand lower square is Ellis and ochre. Neither of these is very plastic and this square had a tendency to peel during or after the firing although it has not peeled on this particular sample. We are not able to offer an explanation of these subtle differences in color, particularly in respect to the Dalton and Ellis clays. Neither do typical analyses furnished by Mr. Phelps for these two clays throw much light on the subject. Both are low in lime and magnesia and contain about the same amount of alkali (potash and soda). The iron is lower in the Dalton clay but still high enough to give a good color; it does give a good black. These analyses are for the clays as received and, before using, the coarser particles which are high in silica would be settled out. It is doubtful if the relative values for the two would change much. Insofar as we are concerned, these analyses or even the analyses of the settled material are of little value in the present state of our knowledge and they are simply inserted here for the sake of completeness. Physical properties such as plasticity and certain chemical properties, such as the presence of iron and the absence of considerable amounts of lime and magnesia, as well as trial and error based on experience are the final criteria as to whether or not a clay or an ochre is suitable

for glaze. The Greeks used trial and error and so, to a large extent, do we.

TABLE I
TYPICAL ANALYSES FOR DALTON AND ELLIS CLAYS

		Dalton Percent	Ellis Percent
Silica	(SiO ₂)	63.28	52.38
Alumina	(Al ₂ O ₃)	18.36	22.63
Iron	(Fe ₂ O ₃)	6.45	11.91
Titania	(TiO ₂)	1.27	0.88
Ignition		6.40	8.45
Lime	(CaO)	0.34	0.47
Magnesia	(MgO)	0.46	0.04
Soda	(Na ₂ O)	0.25	0.64
Potash	(K ₂ O)	2.55	2.62
Total		99.36	100.02

In making our intentional red we used Greek clay and ochre and alkali or Greek clay, ochre and Ellis (and alkali). The ochre we used is a high grade sample supplied us by the C. K. Williams & Company, Easton, Pennsylvania. After settling, this ochre had about 25 percent iron calculated on a calcined basis (as it would have been in the glaze). As soon as we can secure ochres from the preferred locations in Greece, we shall try some of them.

One other tile on the color plate remains to be mentioned. This is tile g and is the first fairly satisfactory red that we were able to make. It is, however, too rosy and this is accounted for by the addition of more ochre than is allowable for a true intentional red. It does, nevertheless, have less ochre than a true accessory red. The upper red is made by adding ochre and Ellis clay to the black which is on the same tile, while the lower red is made by adding the same amounts to a slightly less well settled black. There does not appear to be any appreciable difference between the two. These two reds could be reduced to about 870°C without sintering but this temperature is too high for true intentional red. The intentional red on tile b was fired at 825°C.

As mentioned above, our study of black glaze has been only incidental to our study of the red. A short review of previous work on black glaze and a few of our observations may, however, be of interest. In America, Mr. Binns¹¹ did a great deal to clarify the nature of the black glaze. Miss

¹¹ Charles F. Binns and A. D. Foster, "The Genesis of the Greek Black Glaze," *AIA* 33 (1929) 1-9.

Richter's book, *The Craft of Athenian Pottery*,¹² is a classic and has added greatly to our knowledge of the technical aspects of Greek pottery. There is also a summary by Miss Richter in Volume II of *A History of Technology*.¹³ The credit for the first really successful preparation of a glaze comparable to the ancient Greek black glaze should, we believe, go to Dr. Schumann.^{1,2}

In general we prepared our black glaze as recommended by Dr. Schumann in that we deflocculated (peptized) the clay and allowed the coarser particles to settle. We prepared a glaze that could be fired at a lower temperature than he suggests, for that is necessary if one is firing intentional red glaze at the same time. Our glaze, even our lowest sintering, might well have been fired at a somewhat higher temperature but we always tried to fire near the lowest possible temperature. Firing only to 800°C and no higher would probably result in the best possible red. We have never been able to fire any lower than 810°C and at that temperature, even with our best black, it was touch and go whether we would get red or black. It is much safer to fire at around 825°C for such a glaze. That the Greeks also tried to fire at the lowest possible temperature is shown by the cup in the Metropolitan Museum which has misfired (pl. 36, fig. a). Here they did not reach a sufficiently high temperature to sinter the black except on one side which was probably the side toward the hotter part of the kiln. At this point we might state that experience has led us to believe that most of the examples of unintentional red on pots, and, as every archaeologist knows, such examples are legion, are more often than not due to the fact that the glaze was not taken to a high enough temperature to sinter. It is very easy to get a glaze which is partly black and partly red, or even entirely red, if one is working near the sintering temperature for the particular glaze one is using.

Miss Bimson¹³ has recently done some work on black glaze at the British Museum and includes in her paper references to earlier work. Following Rijken and Favejee¹³ she points out the importance of illite in the clay one uses for glaze. Further information on clays can be obtained from a recent book by Miss Shepard.¹⁴ This book deals with early American pottery but the material is of in-

terest to all archaeologists. An excellent technical book on clay is one by Grim.¹⁵

It was first observed in 1939 that some of the black glaze at least is magnetic.¹⁶ On the basis of this observation, Prof. P. W. Selwood of Northwestern University separated some glaze for us from a 5th Century black glazed skyphos by the following ingenious method: "The method consists of scraping or cutting off the surface with a good knife, grinding in an agate mortar, and then suspending the powder in a beaker of water. The electromagnet, about 200 turns of No. 14 copper wire on a 1/2 inch iron rod 10 inches long (2-3 amps. D.C.), is placed directly under the beaker. The mixture is stirred rather gently and while distilled water is added, drop by drop, the water is kept at constant level by a suction tube. It is quite astonishing to see the brown powder gradually disappear in about an hour, while the black glaze collects about the magnet. After drying, the glaze can be further cleaned up by rubbing it hard on a piece of paper." This magnetism would necessitate the iron in the glaze being Fe_3O_4 since FeO , the other black oxide of iron, is not magnetic. In support of this supposition we have identified the lines of Fe_3O_4 (together with other unidentified lines) in the X-ray diffraction patterns of two or three examples of black glaze (5th Century) and the lines of Fe_2O_3 in one example of intentional red. Since the glaze is quite glassy and most of the pieces curved, it is not easy to get a good X-ray pattern from a sherd. That the iron in the black glaze is not always Fe_3O_4 is shown by Miss Bimson's result¹³ where she got the diffraction pattern of FeO for one example. It is safe to say, however, that the coloring matter in both the black and the red glaze is iron; the red must be Fe_2O_3 since that is the only red oxide of iron but the color can be modified by impurities and state of aggregation of the iron oxide; the black oxide can be either Fe_3O_4 or FeO ; we believe it is more often than not Fe_3O_4 but we have not made any extensive study of the problem. The question has sometimes been raised as to whether the black color could be due to carbon, as is often the case with Indian pottery. Micro-carbon determinations on 5th Century black glaze did not, however, show a trace of this element.

The thinness of the black and red glaze has been

¹² Mavis Bimson, "The Technique of Greek Black and Terra Sigillata Red," *Ant* 36 (1956) 200-04.

¹³ A. J. Rijken and J. C. Favejee, *Chem. Weekblad* 38 (1941) 262-64.

¹⁴ Anna O. Shepard, *Ceramics for the Archaeologist* (Car-

negie Institution of Washington, Washington, D.C. 1956).

¹⁵ Ralph E. Grim, *Clay Mineralogy* (McGraw-Hill Book Co., Inc. 1953).

¹⁶ *Hesperia* 9 (1940) 265.

observed by all archaeologists. It is amazing that such a thin substance can be so durable. When Prof. Selwood separated the glaze for us magnetically, he got 4.1 mg. from a surface 13 sq. cm. in area. Since the density of the glaze is probably around 3, this would calculate entirely too thin so he must have lost part of it. A truer picture of the thickness of the glaze can be obtained from pl. 36, fig. d, where the magnification is 65 x. The extraneous particles on the glaze surface are silver powder which was put there for an X-ray standard and not entirely brushed off before this photograph was made. We are indebted to Mr. S. E. Q. Ashley of the General Electric Company for this photograph. While speaking of the thickness of glaze, we should state that we have never observed that applying glaze thinly or otherwise has anything to do with whether it goes black or red. This depends on its sintering temperature and the temperature to which it is fired. The sintering temperature on the other hand depends on the particle size of the clay particles and the composition of the glaze. We have tried applying both red and black glaze ex-

tremely thin and both went to the color expected, if fired at the correct temperature.

We are indebted to so many people for supplying samples for this work that it is impossible to acknowledge all. We are primarily indebted to Miss Lucy Talcott who has been tireless in supplying us with examples of fired Greek pottery as well as with samples of Greek clays. We are also especially indebted to Mr. G. W. Phelps who supplied us with several American clays. We are indebted to the Greek Institute for Geology and Subsurface Research and particularly to Mr. A. A. Tataris of this Institute who assisted us in collecting samples of shale on the slopes of Mt. Hymettus in the Spring of 1956. And lastly, we are grateful to Miss Gisela M. A. Richter who taught us so much about the technical aspects of Greek pottery and who first introduced us to Dr. Schumann's work and thus indirectly to the problem of the red intentional glaze.

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RAHWAY, NEW JERSEY

APPENDIX

DIETRICH VON BOTHMER
Metropolitan Museum of Art

PLATE 37

Note on the red-figured cup New York 07.286.47 (ARV p. 77):

The Hegesiboulos cup in New York has been known for over fifty years, but its color-scheme is not described in FR II pp. 178ff nor observed in Richter and Hall *Red-figured Athenian Vases in the Metropolitan Museum of Art*, p. 26. Sir John Beazley was, I think, the first to draw attention to it, when he asked me in a letter of February 9th, 1955 "Will you please tell me if I am right in thinking that coral-red is used on the Hegesiboulos cup —on the lip?" A re-examination of the cup revealed the presence of coral-red (or "controlled red") not only on the lip, but also in the area below the figure-zone and stem, and on the top-surface of the foot, on the underside of the foot within the encircling black band, and on the inside of the cup in a zone between the tondo and the off-set lip.

The cup had been badly discolored in a reducing fire, perhaps on the funeral pyre, and the controlled red had turned varying shades of grey and black. Sir John's query came at the very time when Mr.

H. Filtzer of the Museum's Department of Conservation was engaged with me on the task of refiring our discolored Attic pottery. The cup was therefore taken apart and refired under oxidizing conditions. The new appearance of the cup is illustrated here for the first time on plate 37, together with views taken before refiring.

The results of this particular refiring were awaited with a very special curiosity, as there was some question as to the behaviour of the controlled red in a re-oxidizing fire. If the controlled red was in fact nothing but ordinary glaze subjected to only one phase of firing, and if the vase had subsequently been subjected to an accidental reducing fire, which turned the controlled red into grey or black, the next step, another re-oxidizing fire, should not change the color of the areas of controlled red, but preserve the black color obtained in the reducing phase. The Hegesiboulos cup, however, behaved differently, for the areas of controlled red became, for the most part, once again coral-red.



The Palace of Nestor Excavations of 1957:

Part I

CARL W. BLEGEN

PLATES 38-49

Excavations in and about the Palace of Nestor, which was discovered in 1939 at Epano Englianos in Southern Triphylia, were resumed by the archaeological expedition of the University of Cincinnati during the summer of 1957 in a sixth campaign, extending from May 21 to 3 August. As noted in earlier preliminary reports,¹ this enterprise represents the current American share in a joint Helleno-American archaeological investigation of Western Messenia, in which Professor Spyridon Marinatos of the University of Athens is my colleague.

Once again Professor and Mrs. W. T. Semple of Cincinnati made the undertaking possible by providing the expedition in generous measure with the funds required. We are much beholden to Dr. J. L. Caskey, Director of the American School of Classical Studies at Athens, for many courtesies: he was especially helpful in lending to us for a few days his architect, Lloyd Cotsen, who came to Pylos and brought the plan of the palace up to date by adding the new wing that we uncovered during the season (pl. 38, fig. 1). We likewise acknowledge our great obligation to Miss Alison Frantz, who photographed for us all the inscribed tablets, the seal impressions, and the seal stones found this year. We are also deeply indebted to Professor Marinatos, Director of the Greek Archaeological Service, for his assistance in having assigned to us a vase-mender, Costas Pavlatos, for the month of July.

The staff of the expedition comprised Miss Marion Rawson of Cincinnati, Professor Mabel Lang of Bryn Mawr, Lord William Taylour, and William P. Donovan. Dr. J. Lawrence Angel of the Jefferson Medical College spent some days with us—from July 10 to 22—studying the skulls and the skeletal material recovered in 1956 and 1957. It is a great pleasure in behalf of the expedition to express cordial thanks to all these colleagues for their faithful and indispensable cooperation.

Dionysios Androutsakis of Chora, as in previous years, was our foreman, and our workmen, ranging

from 14 to 30 in number, were for the most part trained veterans of earlier campaigns. Apart from our main preoccupation with the palace itself, we extended our activities to the investigation of tombs in the immediate neighborhood.

On the palace ground exploratory trenches revealed walls of a hitherto unsuspected wing lying to the northeast of the enclosed courts outside the bath and the Queen's apartments. The structure, which was cleared in the course of the season under the direction of Marion Rawson, occupies a space ca. 32.50 m. long from southeast to northwest and approximately 16 m. wide (pl. 38, fig. 2). It was separated from the central unit of the palace that contains the megaron by a stucco-paved ramp, about 3.40 m. broad (pl. 39, fig. 3), ascending from southeast to northwest alongside the two courts just mentioned. At its top the ramp apparently turned northeastward into a region not yet fully excavated.

The southwestern wall of the newly discovered wing, bordering the ramp on the northeast, is nearly 1 m. thick, carefully constructed, for the most part of unworked stones, founded, so far as we can tell, on *stereo*. Sunk into the stucco pavement of the ramp at the foot of the wall (pl. 39, fig. 4), is a water channel made of limestone blocks in which a fairly deep rectangular trough was cut, much in the manner familiar from Classical Greek times. The steepness of the inclination implies that the channel was designed as a drain to carry away waste water. Its lower termination has not yet been fully examined. Not far from the upper end of the ramp there are traces of what may presumably be recognized as a stucco-faced reservoir, which still needs further study in detail; and a line of pipe-shaped terracotta pipes may belong to a conduit that brought a supply of water from the north to this area (pl. 39, fig. 5). The whole region requires further careful digging and study before the plan of the establishment and some idea as to the source

¹ *AJA* 57 (1953) 59-64; 58 (1954) 27-32; 59 (1955) 31-37; 60 (1956) 95-101; 61 (1957) 129-135.

of the water supply can be even conjecturally recovered.

The northeastern wing is a rectangular structure that follows the same general orientation as the central insula which contains the Throne Room. So far as yet ascertained, we have no specific evidence to indicate whether the building in its date of construction is earlier or later than, or contemporary with, the main block. Like the latter, however, it was certainly occupied and in use at the time the entire palace was destroyed in the great fire.

The southern quarter of the rectangle seems not to have been enclosed or roofed. Here the stone gutter mentioned above continues southeastward across an open stuccoed court, the pavement of which rises sharply toward the northeast, as if being carried over some underlying obstacle or wall.

In this court stands a large block of limestone (*poros*), coated on top and on all four sides with plaster which still bears remains of frescoed decoration (pl. 39, fig. 6). We take this to be an altar. It is set almost in the line of the axis of a façade that looks down upon the court from the northwest. Two large *poros* blocks, evidently anta bases, are still in place, connected by a transverse row of flat stones, and the walls behind indicate a small room or portico, ca. 3.10 m. wide and 3.40 m. deep from front to back. Its floor level was much higher than that of the court. It seems to us likely that what we have is the foundation of a shrine, perhaps of stepped form, that directly faced the altar (pl. 39, fig. 7). In the black earth covering the court to the southeast of the altar Miss Rawson found fragments of three inscribed tablets (Nos. Cc1285, Unr1322, and Xb1337). From the same area came four beautifully shaped arrowheads of chert. Five or six nests of potsherds scattered about in the court, mainly between the altar and the shrine, presumably represent as many vases that had been left or had fallen on the stucco pavement.

From the court a wide passage at the right leads northwestward alongside the shrine, giving access behind the latter to a small rectangular chamber, and, farther to the northwest, through a broad doorway to a large room occupying the western corner of the building. In the passage were found several nests of sherds and crushed pots; a spacious deep jar near the northwestern doorway (pl. 39, fig. 8) contained a lentoid seal stone of steatite. A clay sealing, bearing impressed octopuses and a band of dots, with griffins above, came to

light here along with fragments of burned ivory, bits of a bronze arrowhead, and a coil of thin silver wire. A crude unpainted animal figure of terracotta was found in soft black earth, perhaps below the floor level, near the doorway into the small chamber.

Abundant signs of burning were observed in the passage and also in the large corner room which contained much charred wood and other carbonized matter lying on the floor. The latter, as almost everywhere in the northeast wing, was made not of stucco but of clay trodden down hard; it was badly cracked and broken by the heat of the fire. The whole chamber was found covered with masses of hard fire-fused debris, which our workmen called *pori*, and a thick deposit of reddish clay, evidently the dissolved remains of crude brick. This latter makes it clear that the walls were built of crude brick, supported on the substantial stone socle that has survived.

The exterior wall of the chamber toward the northwest meets the southwest wall at an odd obtuse angle. A maze of foundation walls just outside, to the northwest, indicates that this area was occupied by other structures, some perhaps connected with the water-works already mentioned; and their presence may have forced the builders of the northeast wing to shift the line of the northwest wall from the normal and thus to make the awkward western corner. It is likely that a broad doorway opened to the northwest through the wall, though much of the latter has been removed by looters, and evidence is consequently lacking at the decisive point.

A second wide doorway led northeastward into a spacious room that fills the northern corner of the wing. This apartment, ca. 7 m. to 7.20 m. long from northeast to southwest, and varying from 6 m. to 6.40 m. in width, had also been buried beneath large chunks of fused clay and stone, and a thick layer of disintegrated crude brick; and here too there was a profusion of carbonized matter on the earthen floor. Many crushed pots and groups of potsherds were found distributed about in nearly all parts of the room; and two large coarse jars, though badly cracked, still stood upright not far from the northeastern wall (pl. 40, fig. 9). Under one badly crushed vessel near the middle of the chamber Miss Rawson recovered 12 clay sealings, and nine further examples were collected from other places in the room. The pottery has not yet

been cleaned and mended; some of the vases seem to bear painted decoration, but the great majority may be classed as coarse domestic vessels.

Adjoining the corner apartment on the southeast is the largest room in the newly uncovered wing of the palace. It has a length of nearly 15.50 m. from northwest to southeast and an average width of 6.40 m. (pl. 40, fig. 10). So far as now determinable, this room could be entered only through a very wide doorway opening from the court that surrounded the altar described above. The threshold blocks have not survived, but there is a clean gap in the wall marking the position of the entrance. Within the long hall were found several large flat stones set in the earth floor as if to serve as bases for posts or pillars, though without recognizable regularity and symmetry in their spacing. The total width of the hall, 6.40 m., is in any event not too great to be easily spanned by substantial wooden beams. Close beside the lateral walls, especially the one on the northeast, we observed many smaller flattish stones, which might have been set to support upright timbers to hold up wooden benches or shelves.

In many places, particularly along the southwestern side of the room, shattered vases and nests of potsherds were noted, perhaps a dozen in all. They lay on the floor generally beneath a layer of reddish clay, no doubt derived from dissolved crude brick. The floor deposit yielded two arrowheads of flint, many diminutive arrow points of thin bronze, two buttons of steatite, one of the conoid, one of the shanked type, a terracotta whorl or button, and the head of a terracotta figurine. But much more exciting was the discovery by Miss Rawson, chiefly in the westerly quarter of the long room, of some 97 pieces of inscribed tablets, with which were associated 11 complete and four fragmentary clay sealings. The tablets lay scattered about in confusion, perhaps fallen from a shelf backed against the southwestern wall. When cleaned and joined together, so far as possible, the tablets were reduced to a total of 56; they have been catalogued and recorded by Miss Lang in Part 2 of this report under the definitive inventory numbers 1272 to 1284, 1286 to 1321, 1323-1324, 1335, and 1339 to 1342.

The northeastern exterior wall of the new wing, more than 1 m. thick, is preserved to a total length of 31.50 m. southeastward from the northerly corner of the building. Throughout its course it was founded on *stereo*. To the southeast of the long

hall, in the easterly corner of the wing, there was once another rectangular room, ca. 7 m. long and 6.40 m. wide. Its floor, intersected by the descending surface of the hillside, has been wholly destroyed along with the southeastern wall; but the general line of the latter is clearly marked by traces of a trench, betrayed by its filling of blackish earth, whence the stone foundations of the wall had at some time been removed. Whether this was the exterior wall of the wing or an internal partition in a structure that extended still farther to the southeast has not yet been surely determined.

The northeastern wing of the palace, which comprises an open court and some seven covered rooms of various shapes and sizes, seems not to have had an upper story. The massive stone foundations were no doubt designed to carry thick walls of crude brick supporting a heavy roof-terrace resting on horizontal beams. The interior partition wall, running from northwest to southeast, follows roughly, if not exactly, the longitudinal axis of the building.

Until the texts of the inscribed tablets have been more fully studied and understood one can only venture a conjecture regarding the specific purpose served by the northeast wing. The presence of so many tablets and seal impressions suggests in any event that official administrative services of some kind were installed here. Since many of the documents apparently deal with manpower "owed"—perhaps in some form of impressed labor or military duty—while others seem to be concerned with spare parts for chariots and harness; and since several of the seal-impressions are inscribed with the word O-PA, which has been interpreted as referring to some "form of feudal service," it is tempting to recognize in the building the quarters of the palace guard or garrison, and perhaps the armory. The arrowheads of flint and bronze that came to light in various parts of the area might be cited as supporting evidence. Nor would the shrine we have been bold enough to recognize be inappropriate in such a place: one of the tablets mentions a goddess PO-TI-NI-JA I-QE-JA (potnia hippeia?) who would certainly not be out of place in an armory where appurtenances of horse-drawn chariots were kept.

Elsewhere in the palace only a few minor test pits were dug. One trial was made to the southeast of the Archives Annex in an attempt to find the piece missing between tablets Ta709 and 712, as illustrated on page 82 of Bennett's *The Pylos Tablets*.

lets, *Texts of the Inscriptions Found 1939-1954*. This essay was unsuccessful. Subsequently, when we reopened the earth-filled trench left by the looters, who long ago carried off the stone blocks of the wall between the Propylon and the Archives Rooms, we had better luck. The much-sought missing fragment was actually recovered along with some 28 other pieces, several of which were found to join tablets discovered in 1952. Texts thus supplemented are those catalogued by Bennett under the following inventory numbers: Ta709 and 712 (pl. 40, fig. 11), Sa753, Ea757 and 819, Sa843, Na856, Eb885, and Na941. Additional new texts will be found in Part II of this report under Nos. 1263 to 1271.

Outside the palace grounds operations were carried out in two different sectors. In an *aloní*, a bed for drying currants, that occupies the crest of a narrow ridge, or spur, about 135 m. almost directly south of the capital hill, some stones of a curving wall had long been visible, and it was reported that a large pithos, potsherds, and fragments of bronze had been found in the immediate neighborhood. With the permission of the owner, Eustathios Vayenas, digging was begun under the supervision of Lord William Taylour. It soon became clear that the remains were those of a tholos tomb.

Save for an arc of somewhat less than half a circle (with an indicated diameter of ca. 5.60 m.) in which flat stones of the enclosing wall were preserved only to a height of one or two courses (pl. 40, fig. 12), the entire superstructure of the tholos had long ago been removed at a time beyond the memory of those now living. The tumulus above the grave and the built vault itself had then been razed in order to provide a level area to serve as a drying ground for currants. Although the floor of the tomb was thus found to lie barely 0.25 m. below the surface of the *aloní*, the burial deposits, except in the southern half of the circle, had suffered relatively little disturbance, and we observed no evidence of looting. Nothing survived to indicate the position of the dromos, but it must have been on the southerly side of the chamber.

One skeleton lying in order in a shallow pit (pl. 40, fig. 13), many small pots, numerous arrowheads of chert, a terracotta figurine of a pregnant female, a bronze mirror and other objects were found in the upper levels, but the most interesting items came from five or six grave pits sunk more deeply beneath the floor. Among the most remarkable novel-

ties are four large pottery jars, each of which, used as a sepulchral urn, contained a complete skeleton. This method of burial, so far as known to me, has not previously been reported from a Mycenaean tholos.

The tomb was relatively rich in its yield of funerary offerings. Among the most important items listed by Lord William Taylour are the following: two diadems or headbands of gold; numerous fragments of silver, some bearing impressed decoration; eight rapiers, one short sword, 16 daggers, an ivory-handled awl, the beam and two scale pans of a balance, three pins, two large cauldrons, a bowl, a cup, three disks, and a mirror of bronze; four pommels and four pins of ivory; two lentoid seal stones, 58 arrowheads of chert and eight of obsidian, a shanked button of steatite, two hones and a pestle, 19 beads of amethyst, seven of carnelian, nine of amber, 172 large and small of glass paste, a button or whorl of terracotta, and some 33 pots of various shapes and sizes.

The latest pottery, so far as has yet been determined, is assignable to Late Helladic III A; and the terracotta figurine, of the disk-shaped type, is evidently of the same period, to which the final burials at the floor level must presumably belong. Earlier elements, chiefly from the grave pits, go back to Late Helladic II—one of the jars that held within it a skeleton is an admirable example of the Palace Style (pl. 41, fig. 14)—and it is possible that the first use of the tomb must be attributed to the end of Late Helladic I. The sepulchre is thus seen to have a long history, and it was probably still being used at the time some parts of the palace, as we have it, had already been built and taken under occupation.

During the season of 1957 further investigations were undertaken in the cemetery of chamber tombs which, as was discovered last year, occupies a ridge that begins some 150 m. to the west of the palace site and slopes westward down into a deep ravine. Ten or twelve dromoi had been noted in 1956 and one tomb had been partly excavated under the supervision of W. Donovan. This season Mr. Donovan completed the clearing of Tomb E 4 and opened another, numbered E 6.

Tomb E 4 had been cut in hard clay under a ledge of soft *poros*. The dromos, showing a slight inward inclination of its sides, ran from south to north; since its outer end extended far out under a vineyard, only the inner end was excavated. The

doorway, 1.67 m. high, was blocked by an irregular stone wall. The chamber had collapsed and had in part to be dug from above. It was roughly oval in shape, measuring 3.30 m. from north to south and 5.20 m. from east to west. The burials had been much disturbed by the collapse of the roof and no skeleton was found lying in order, the bones being all in a badly disintegrated state. Two fairly deep pits had been dug into the floor, one on the left, one on the right of the chamber, each containing a skull and some crumbling bones. The tomb yielded a crystal pendant, 16 carnelian beads, some 20 of glass paste, a terracotta figurine of the disk-shaped type, and nine small vases. The objects seem to date the tomb to Late Helladic III A-B.

The dromos of Tomb E 6, running from south southeast to north northwest, was 8.50 m. long, broadening from 0.70 m. at its outer end to a width of 1.28 m. at the doorway, toward which it descended sharply. The sides have a pronounced inward inclination. High up at the inner end of the dromos was an upright stone slab, possibly a grave marker. A few minor objects and potsherds ranging in style from Late Helladic III A to III C were recovered from the dromos.

The doorway, 1.57 m. high, had been closed by a stone wall over which an irregular sandstone slab formed a lintel. Above the lintel was an upper and later doorway also blocked by a wall of stones.

The rectangular chamber, 2.30 m. wide from north to south and 3.86 m. long from east to west, had collapsed and was excavated from above. At least three levels of burials could be differentiated. The latest, lying ca. 2.35 m. above the floor and corresponding to the upper doorway, produced three skulls but no complete skeleton. Three vases and some sherds were found in this context. An intermediate level, ca. 1.15 m. to 0.80 m. above the floor, yielded a skull, 15½ gold beads, nine beads, two disks, and nine triangular ornaments of ivory, and a feeding bottle. The lowest level disclosed two superposed adult burials on the right side of the tomb. The uppermost, with head to the north, lying on its back and resting on some material that had left a reddish deposit, was accompanied by a cruciform sword, a dagger, a spearhead, and a cleaver of bronze, and two vases. Beneath was another complete skeleton, also on its back, with head to the south. To this burial belong a dagger and a knife of bronze and four pots. On the left side of the chamber were three burials, one of an adult,

two of children. The adult lay near the side of the tomb, with head to the north. Associated objects were a bronze mirror and three pots. The two children lay in a line, each with head to the south. One had a bronze mirror which, together with fragments perhaps of an ivory handle, rested on the skull. A necklace of paste beads remained in place around the neck. The other child—to the north—likewise possessed a necklace of paste beads and was accompanied by two terracotta figurines of the disk-shaped type. Seven small vases were associated with the two child-burials. A shallow depression in the northeast corner of the chamber contained two skulls and some carnelian beads. Three further pots could not be assigned specifically to any particular burial. The pottery (pl. 41, fig. 15) and other objects recovered indicate that Tomb E 6 was used continuously for burial from Late Helladic III A to III C.

Lord William Taylour had charge of the excavation of yet another chamber tomb, K 1, which was discovered considerably farther down the sloping ridge. The dromos was neatly cut with an inward inclination of its sides. A deep pit near its outer end yielded nothing of interest. The doorway, ca. 1.95 m. high, was arched at the top and had no need of an inserted lintel. The doorway was closed by a carefully built wall (pl. 42, fig. 16). At its bottom was found in upright position a fairly large narrow stone slab, which might perhaps have been intended for use as a tomb marker. The greater part of a plain kylix lay beside it in front of the door.

When the stone blocking was removed it was seen that the chamber had not collapsed, and only a modest accumulation of crumbled rock, earth and silt covered the sepulchral deposits on the floor. Although relatively small, the chamber contained a good many burials. Three skulls and numerous bones were revealed along the lateral rock wall at the left, accompanied by 14 vases. Bones and four pots also lay along the right side. A pit sunk beneath the floor near the center of the tomb likewise contained skulls and many assembled bones but no pottery.

The vases brought to light in Tomb K 1 (pl. 41, fig. 17) were almost all intact and in remarkably good condition. Most of them seem to belong to the style of Late Helladic III B.

In addition to our progress in actual digging, advances were made during the past season in the

task of cleaning and studying the material already recovered. Professor Mabel Lang devoted the greater part of two months to intensive work on the hundreds of fragments of frescoes found in 1956 in the Queen's Hall. All these pieces were coated with a hard, resistant lime accretion which effectively concealed what it covered. With great patience and perseverance Miss Lang removed this opaque coating, revealing the painted designs underneath. She succeeded in finding many joins, reconstituting in this way a fine head of a griffin (pl. 42, fig. 18), the head of a panther or a savage dog (pl. 42, fig. 19), many other details, and parts of several large compositions in which griffins, lions, and other animals are represented. Apparently each wall of the Queen's room bore zoological paintings of this kind, probably arranged in a zone above a dado that was decorated with more abstract patterns. The association of griffin and lion, which was recognized some years ago in the wall painting behind the throne in the Throne Room is thus seen to be repeated in the Queen's apartment. It is clear that lions and griffins, but especially griffins, played an important symbolical role in the protection of the royal family that resided in the palace. Griffins appear on many of the seal impressions found in the northeast wing, perhaps as a special symbol of official royal power.

Miss Lang restored to visibility the frescoed design on the sides of the altar (pl. 39, fig. 6) in the court of the new wing, and a similar pattern on the inner face of the cross wall in the Propylon. It is interesting to note that the same motive in the same style was used generally in all three units or blocks of the palace; for it appears also in the dado zone on the walls of Hall H in the southwest wing.

In other fields, too, Miss Lang rendered invaluable assistance, cleaning some 40 clay seal impressions which were recovered chiefly in the long hall and the north room of the northeast wing (pl. 42, figs. 20 & 21). Moreover, she cleaned, mended and preserved all the inscribed tablets that came to light during the season. She has transliterated all the texts in accordance with Ventris' and Chadwick's tables of phonetic values; and in Part 2 of this report she is publishing line facsimiles based on photographs of the tablets, along with the transliterations and comments of her own. In this way all the new material will be made available at the earliest possible moment to all scholars interested

and engaged in the study of the Mycenaean language.

Each season during the excavation of the palace vast quantities of pottery have been recovered. A good deal of it has been processed from year to year, but much of the material from the various pantries is still awaiting attention. In the course of the winter of 1956-57 Dionysios Androutsakis, our foreman, washed and cleaned the entire collection of crushed and shattered pots removed in 1953 from Pantry No. 4. In July 1957 Costas Pavlatos, vase mender in the Patras Museum, was lent to us for a month. Besides keeping up fairly well with the current inflow of ceramic material from the tholos and the chamber tombs he managed to put together a good many vases from the pantry in question. Among the items of special interest are two plain kylixes of extraordinary size, the largest examples of the shape known to me. The bigger of the two (53.338) is 0.295 m. high and has a diameter of 0.305 m., measured across the rim. The other is only slightly smaller. In the *Iliad* Nestor is famous for the colossal size and weight of his gold *depas*. In these two kylixes from ancient Pylos may we not perhaps see some reflection of the origins of that tradition?

Our plan for clearing the whole of the palace and its appendages has not yet been completely realized. Areas of considerable extent still remain to be examined to the northwest of the new wing and of the central block, and to the northwest, west and southeast of the southwestern wing, to mention only the most obvious. Several further tombs that have been noted likewise await investigation. Much more work, too, has yet to be done on the large accumulations of pottery, frescoes, and other objects now housed in our workroom at Chora which is full to overflowing. When the new museum, now in course of construction in the upper edge of the village, has been finished and taken into use, we hope to gain a great deal of much needed space for dealing with these problems.

Recognizing the palace as an outstanding architectural monument of the Mycenaean Period, the Department of Reconstruction in the Ministry of Education under Professor Orlandos has undertaken to enclose, roof, and protect the principal sections of the building. Two conferences were held on the site on the 5th and 30th of July, in which Professor Marinatos, Director of the Archaeological Service, and I discussed details of the project

with Professor Orlandos and his colleague, Dr. Stikas. We found ourselves in full agreement on the basic principle that all elements of the structure which have survived must be carefully preserved and safeguarded, and the palace duly laid open for exhibition and easy understanding to all interested visitors. Preliminary work has already been started

and detailed plans are being made for completing the undertaking in several years. It is a pleasure to have this opportunity to express the cordial thanks of the Cincinnati Expedition to Professors Marinatos and Orlandos and Dr. Stikas.

UNIVERSITY OF CINCINNATI

Part II*

MABEL LANG

PLATES 43-49

NUMBERS AND CLASSIFICATION

Except for new fragments which join pieces already published, the tablets found in 1956 and 1957 are numbered from 1258 to 1343, following on the tablets numbered 1 to 1199 published by Bennett in *The Pylos Tablets 1939-1954* and tablets numbered 1200 to 1257, which were found in 1955 and will be published by Bennett. The pieces found in 1957 which join published tablets are given the published tablets' numbers.

In accordance with the classification system established by Bennett each tablet's number is prefixed by two letters indicating the class and subclass to which the tablet has been assigned. Where new ideograms or unprecedented content seemed to make desirable further differentiation, new categories have been added. Class Q has been established for the new ideogram made up of *44 (KE) in a frame. The following sub-classes are also new: Ac for one-line tablets listing a town, a number of men and a number of men owed; Sb for tablets concerned with more elaborate and less ideogrammatic chariot-equipment than the tablets of Sa; Ub for tablets which use the syllabic sign *38 (E) as an ideogram. Class U seemed appropriate also for other tablets combining known ideograms with other syllabic signs here used ideogrammatically for the first time.

DRAWINGS AND TRANSCRIPTION

The drawings of the tablets were made, as in Bennett's *The Pylos Tablets 1939-1954*, by tracing

with India ink the lines of the stylus on photographs of the tablets printed to actual size. The tracing was done with the tablet in hand for constant reference. The photographs were then bleached and the drawings re-examined and corrected. They are here printed at two-thirds actual size.

Transcription of the texts follows the code set by Ventris and Chadwick (*Documents in Mycenaean Greek*, pp. 155-156) with regard to syllabic values, use of brackets, dotted letters, etc. There is one exception: ideograms are not used in the transcription here, so that unidentified ideograms, weights and measures and the like are referred to either by their asterisked numbers (see *Docs.* pp. 50-51) or, where they are also phonetic signs, by their syllabic values. Numbers have been assigned to the two new ideograms: *189 to KE in a frame; *214 to the vessel on Ta709.1.

Two signs present special problems because of the fragmentary state of the texts in which they appear: a circle with inscribed circles which appears on Un1321.2, and a sign which is similar to some forms of *120 (WHEAT) and which occurs on Un1319 -1321 -1322. The circle sign appears on Wa1199, where Bennett interpreted it as KA; his lead is followed here, but with this word of comment. The WHEAT-like sign seems to me sufficiently different in form and use to be interpreted as a new ideogram, but the uncertain state of the texts and the convenience of the miscellaneous U class encourage postponement of decision.

texts under his aegis.

*I should like to express my appreciation to Professor Blegen for the privilege of working at Pylos and of publishing these

WORD-LIST

All words and parts of words appearing on the tablets published here for the first time are listed in alphabetical order. Complete words are followed by an indication of their previous appearance, e.g. PY, KN, etc. Complete words which appear for the

first time on these tablets, even if they seem to be only variant spellings or forms closely related to known words, are in italics. New words which are clearly related to known words are followed by the known word and its provenience in parentheses.

1956

Cc1258

] SHE-GOAT 30

Qa1259

] *189 1

Fr1260 (joins Fr1210)

Xn1261

] -to-ro [
] -te [

] *130+PA 5 *111 [

Xn1262

] ja-ro [

1957

Ta709

pi-je-ras to-qi-de-ja *200 3 pa-ko-to a-pe-te-me-ne *214 2
 po-ro-e-ke-te-ri-ja IMPLEMENT 1 ko-te-ri-ja 6
 *85-te 1 pu-ra-u-to-ro 2 pa₂-ra-to-ro 1 e-ka-ra a-pi-qo-to pe-de-
 we-sa 1 e-ka-ra i-to-we-sa pe-de-we-sa so-we-ne-ja *85-de-we-sa-qe 1
 ti-ri-po ke-re-si-jo we-ke ai₂?-ke-u *201 1 ti-ri-po ke-re-si-jo
 we-ke o-pi-ke-wi-ri-je-u *201 1

Sa753

se-we-ri-ko-jo wo-ka e-qe-si-jo WHEEL+TE ZE 2

Ea757,819

e-u-me-ne qo-qo-ta-o
 e-ke o-na-(to) ke-ke-me-na ko-to-na WHEAT *112 2

Sa843

to-sa we-je-ke-a₂ ne-[wa

Na856

a₂-ki-ra ke we-da-ne-wo LINEN 10

Eb885

i-na te-o-jo do-e-ro e-ke-qe o-[na-to
 [ke]-ke-me-na ko-to-na pa-ro da-mo [

e-re-u-te-ro LINEN 14

Na941

e-ko-me-no LINEN 20 to-sa-de ka-ke-we [

Aa1263

] 15 DA 1 TA 1

Sa1264

e-ti-ra-wo-jo wo-ka we-je-ke-e WHEEL+TE ZE 1

Sa1265

a-re-pa-to wo-ka we-je-ke-e WHEEL+TE ZE 1

te-mi-de-we-te

Sa1266

e-pi-wo-pa₂-ta-o wo-ka we-je-ke-e [
 rev. pe-[] to

Sa1267

e-te-wa-jo wo-ka we-[je-ke-e

Sa1268

we-je-ke]-e WHEEL+TE ZE 2

Sa1269

] ZE 1[+

Sa1270

] ZE 20

Wa1271]-ke-[
 Ac1272 +]1 o-pe-ro MEN 8
 Ac1273 ka-ra-do-ro MEN [
 Ac1274 +]4 o-pe-ro MEN 13
 Ac1275 pe-ti-ni-jo MEN 49 o-pe-ro MAN 1
 Ac1276 pi-*82 MEN 20 [
 Ac1277 a-ke-re-wa MEN 10 o-pe-ro MEN 6
 Ac1278 te-mi-ti-jo MEN 17 o-pe-ro MEN [
 Ac1279] o-pe-ro MEN [
 Ac1280 me-ta-pa MEN 22 o-pe-ro MEN 7

An1281 [po]-ti-ni-ja i-qe-ja
 [.]mo o-pi-ke-de-i
 pa-ka re-u-si-wo-qe MEN 2
 *85-ke-i-ja-te-we-i
 5 o-na-se-u ta-ni-ko-qe MEN 2
 me-ta-ka-wa [po]-so-ro MAN 1
 mi-jo-pa₂ [.]e-we-za-no MAN 1
 a-pi-e-[ra] to-ze-u MAN 1
 [.]ti-a-ke-si po-ti-ni-ja re-si-wo MAN 1
 10 *85-ke-i-ja-[te-we-i . .]-ro MAN 1
 mi-jo-pa₂ ma-ro-si-jo MAN 1
 me-ta-ka-wa ti-ta-ra MAN 1
 a-pi-e-ra ru-ko-ro MAN 1

vacant 3

An1282 a-qi-ja-i MEN 18 a-mo-si MEN 18
 ki-u-ro-i MEN 13 po-qe-wi-ja-i MEN 5
 do-ka-ma-i MEN 36

vacant 2

Cc1283] RAM 1 [
 Cc1284] pe-re GOATS 8
 Cc1285 ma-se-de RAMS 6[+
 Cn1286 *vacat*
 o-pi-ra-i-ja SHEEP 3 GOAT 1

vacant 4

Cn1287	a-*64-jo a-ke-ro	SHE-GOAT 1
	te-re-d ₂ ka-na-pe-u	SHE-GOAT 1
	na-ma-ru-ko	SHE-GOAT 1
	qe-ta-ko ke-ra-me-u	SHE-GOAT 1
5	da-u-da-ro pe-re-ke-u	SHE-GOAT 1
	mu-ti-ri-ko di-u-ja do-e-ro	SHE-GOAT 1
	a ₂ -ra-ka-wo ke-re-ta-o do-e-ro	SHE-GOAT 1
	a-sa-ma-o	SHE-GOAT 1
	mo-ri-wo	SHE-GOATS 2
10	ma-ni-ko	SHE-GOAT 1

vacant 2
 rev. Labyrinth

Ja1288 ka-ra-wi-ne BRONZE *117 4 *116 1 *115 6
 Qa1289 ka-wa-ra i-je-re-ja *189 [

Qa1290 i-je-re-u se-ri-no-wo-te [
 Qa1291 e-ka-sa-te-[
 Qa1292]-ke-ri-ja-wo *189 2
 Qa1293 me]-nu-a₂ *189 1
 Qa1294 pu-ti-ja a-pu₂-we *189 1
 Qa1295 qe-re-ma-o po-pa₂-te-u *189 2
 Qa1296 a-o-ri-me-ne i-je-re-u *189 [
 Qa1297 a-pi-a₂-ro *189 5
 Qa1298 ne-qe-u e-da-e-u *189 1
 Qa1299 ka-e-se-u po-ti-ni-ja-wi-jo *189 1
 Qa1300 i]-je-re-ja *189 2
 Qa1301 ki-nu-ra me-nu-a₂ *189 [
 Qa1302] *189 2
 Qa1303 ke-i-ja i-[je-re-ja
 Qa1304 a-te-ra-wo ka-ra-do-ro [
 Qa1305 wo-ro-qo-ta [
 Qa1306 a-e-[
 Qa1307] *189 2
 Qa1308]-ke-u *189 1
 Qa1309] 1
 Qa1310] 2
 Qa1311] 1
 Qa1312] 2
 Sa1313] we-je-ke-e [
 Sb1314 a-wa-ra-ka-na-o pa-ma-ko
 jo-qi wo-to-mo pe-re 1
 a-wa-ra-ka-na e-pi-ka ka-ja pa-ra-we do-we-wo-qe WHEEL 20
 Sb1315 [a-ra]-ru-wo-ja a-ni-ja te-u-ke-pi 5 di-pte-ra₃ e-ru-ta-ra 15[+
 ro-u-si-je-wi-ja 6 ra-pte-ri-ja a-ni-ja 3
 ne-wa a-ni-ja a-na-pu-ke 5 wo-wo a-pu-ke 9 a-ni-ja e-e-ro-pa-jo-qe-wo 2
 a-pe-ne-wo 4 a-pu-ke a-pe-ne-wo ne-wa po-qe-wi-ja ZE 11
 e-ra-pi-ja
 Ub1316 ra-ma-o / o-pe-ro pe-ru-si-nu-wa E 8
 e-ra-ti-ja-o
 Ub1317 i-wa-ka / o-pe-ro pe-ru-si-nwa-o E 8
 Ub1318 *85-ke-i-ja-te-we ka-tu-re-[\pm 5 di]-pte-ra 2 *85-ke-i-ja-te-we o-ka di-pte-[ra nn.
 *85-ke-i-ja-te-we o-pi-de-o-mo[\pm 7]wo-ro-ma-ta 4
 me-ti-ja-no to-pa ru-de-a₂ [\pm 8]-za di-pte-ra 3 wo-di-je-ja pe-di-ra 2
 we-e-wi-ja di-pte-ra 10 [\pm 9] ze-u-ke-si 1
 5 wi-ri-no pe-di-ro e-[\pm 9]-te-we E 2
 a-pe-i-ja u-po ka-ro we-[\pm 10]-pe-ja E 1
 mu-te-we we-re-ne-ja ku-[\pm 4]-te-we di-pte-ra ai-za pe-di-ro-i 1
 vacant 2
 Un1319 i-[.]-ma WHEAT PE 1 A₂ 10
 O PE 2 A₂ 13 KU E 40 PA 20 E [nn.] PA[+] 1
 e-ri-ka-we-e WHEAT A₂ 1 WO 2 re-u-ko-to [.] A₂ 2 PA E 9
 a-ro-ka E 12

Un1320 [pa-ro] a-ke-ra-wo A [nn.]
 [pa-ro] ti-ri-we-ro A 3
 pa-ro e-u-ka-no A 2
 pa-ro ru-na A 1
vacant 2
rev. Pig's head

Un1321]-ta-ri-ja a₂-to o-ra-qe-te[
]-ka-we to-sa ka-pa-ra WINE[
]-qe ai-te to-o WHEAT [
] o-pa-ro-[.]ze ti-se pa-ro [
vacat

Un1322 [.]no-ti[.]no-pu WHEAT 6 FIGS [nn.]
 do-ku-tu-wo-ko O 2 WHEAT 2 FIGS 2
 za-te-[.]o[] 2
 we-a₂-no[.]no-[.]po-to-to O WHEAT 5
 5 we-[±3]no[±6] 15

Va1323 a-ko-so-ne ka-za-e 33
 Va1324 e-ke-i-ja 30
 pe-di-je-wi-ja 20 a-ko-mi-te

Wr1325 *obv.* HE-GOAT *rev.* o-pa

Wr1326 *rev.* de-mi-pe
 Wr1327 *rev.* pe-re-i-to [X] 330
 Wr1328 *rev.* pe-di-e WI
 Wr1329 *rev.* 20
 Wr1330 *rev.* [o]-pa
 Wr1331 *obv.* RAM *rev.* o-pa
 Wr1332 *obv.* WI *rev.* o-pa
 Wr1333 *rev.* o-pa
 Wr1334 *obv.* HE-GOAT
 Xa1335 de-ka-[.]ma [
 Xa1336]-jo-pte-[

Xb1337]ke-wa-o o-pe-[ro
 +]8 a-ka-na-jo [
 Xb1338 e-[.]me-ka [
 di-pi-si-[.]re[
 Xc1339]-ja 167
] ko-wo-[.]ka-wo 6
 +]6
]8

Xn1340 a-ko[
]ka-ra[
]-jo [
] mo-[

Xn1341 ke-[
[.]du-[
illegible
illegible
5 ro-pi-no[
Xn1342 to-me-o qe-[
e-mo a-pu-ki[
Xn1343 *vacat*
]ka-re-pa-u[

WORD-LIST

a-e-[Qa1306
ai-te (ai-te-re KN) Un1321.3
ai-za Ub1318.7
a-ka-na-jo PY Xb1337.2
a-ke-ra-wo KN,PY Un1320.1
a-ke-re-wa PY Ac1277
a-ke-ro PY Cn1287.1
a-ko-[Xn1340.1
a-ko-mi-te Va1324.2
a-ko-so-ne PY Va1323
a-mo-si (a-mo-ta KN,PY) An1282.1
a-na-pu-ke (a-pu-ko-wo-ko PY) Sb1315.3
a-ni-ja KN Sb1315.1-3
a-o-ri-me-ne Qa1296
a-pe-i-ja Ub1318.6
a-pe-ne-wo Sb1315.4
a-pe-te-me-ne Ta709.1
a-pi-a-ro PY Qa1297
a-pi-e-ra MY An1281.8,13
a-pi-quo-to PY Ta709.2
a-pu-ke (a-pu-ko-wo-ko PY) Sb1315.34
a-pu-ki[Xn1342.2
a-pu-wé PY Qa1294
a-qi-ja-i An1282.1
a-ra-ka-wo Cn1287.7
a-re-pa-to Sa1265
a-ro-ka Un1319.4
a-sa-ma-o Cn1287.8
a-te-ra-wo Qa1304
a-to Un1321.1
a-wa-ra-ka-na Sb1314.3
a-wa-ra-ka-na-o Sb1314.1
a-*64-jo KN,PY Cn1287.1
da-mo KN,PY Eb885.2
da-u-da-ro (da-u-ta-ro PY) Cn1287.5
de-ka-[..]-ma Xa1335

de-mi-pe Wr1326
di-pi-si-[.]re[Xb1338.2
di-pte-ra (di-pte-ra-po-ro PY) Ub1318.1,3,4,7
di-pte-ra₃ Sb1315.1
di-u-ja PY Cn1287.6
do-e-ro KN,PY Cn1287.6,7
do-ka-ma-i An1282.3
do-ku-tu-wo-ko Un1322.2
do-we-wo-qe Sb1314.3
[.]du-[Xn1341.2
e-[Ub1318.5
e-[.]me-ka Xb1338.1
e-da-e-u Qa1298
e-e-ro-pa-jo-qe-wo Sb1315.3
e-ka-ra (e-ka-ra-e-we KN) Ta709.2
e-ka-sa-te-[Qa1291
e-ke KN,PY Ea757
e-ke-i-ja Va1324.1
e-ke-qe PY Eb885.1
e-ko-me-no PY Na941
e-mo Xn1342.2
e-pi-ka Sb1314.3
e-pi-wo-pa₂-ta-o Sa1266
e-qe-si-jo PY Sa753
e-ra-pi-ja Ub1316
e-ra-ti-ja-o Ub1317
e-ri-ka-we-e (e-ri-ka KN) Un1319.3
e-ru-ta-ra MY Sb1315.1
e-te-wa-jo PY Sa1267
e-ti-ra-wo-jo (e-ti-ra-wo PY) Sa1264
e-u-ka-no Un1320.3
[.]e-we-za-no An1281.7
i-je-re-ja PY Qa1289 -[1300] -[1303]
i-je-re-u PY Qa1290 -1296

i-ge-ja (i-qo KN,PY) An1281.1
 i-wa-ka KN,PY Ub1317
 i-[.]-ma Un1319.1

J-ja Xc1339.1
 Jja-ro[Xn1262
 J-jo Xn1340.3
 J-jo-pte-[Xa1336
 J^o-qi Sb1314.2

ka-e-se-u MY Qa1299
 ka-ja Sb1314.3

ka-na-pe-u PY Cn1287.2
 ka-pa-ra Un1321.2
 ka-ra-do-ro PY Ac1273 Qa1304
 ka-ra-wi-ne Ja1288
 Jka-ra[Xn1340.2
 Jka-re-pa-u[Xn1343

ka-ro KN Ub1318.1
 ka-tu-re-[Ub1318.1
 ka-wa-ra Qa1289
 J-ka-we Un1321.2

ka-zo-e Va1323
 ke-[Xn1341.1
 J-ke-[Wa1271
 ke-i-ja (ke-i-jo PY) Qa1303
 ke-ra-me-u (ke-ra-me-we PY) Cn1287.4
 ke-re-si-jo PY Ta709.3
 ke-re-ta-o Cn1287.7
 J-ke-ri-ja-wo Qa1292
 J-ke-u Qa1308
 Jke-wa-o Xb1337.1

ki-nu-ra Qa1301
 ki-u-ro-i (?ki-u-ro KN) An1282.2
 ko-wo-[.]-ka-wo Xc1339.2

ku-[Ub1318.7

ma-ni-ko Cn1287.10
 ma-ro-si-jo An1281.11
 ma-se-de Cc1285
 me-nu-a₂ PY Qa[1293] -1301
 me-ta-ka-wa An1281.6,12
 me-ta-pa PY Ac1280
 me-ti-ja-no (me-ti-ja-no-ro PY) Ub1318.3
 mi-jo-pa₂ PY An1281.7,11
 mo[Xn1340.4
 [..]-mo An1281.2

mo-ri-wo Cn1287.9
 mu-te-we Ub1318.7
 mu-ti-ri-ko Cn1287.6

na-ma-ru-ko Cn1287.3
 ne-qe-u PY Qa1298
 ne-wa KN,PY [Sa843] Sb1315.3,4
 [.]-no-ti[.]no-pu Un1322.1

o-ka PY Ub1318.1
 o-na-se-u KN,PY An1281.5
 o-na-to PY Ea757 Eb885
 o-pa KN,PY Wr1325 [-1330] -1331 -1332 -1333
 o-pa-ro-[.]ze Un1321.4
 o-pe-ro KN,PY Ac1272 -1274 -1275 -1277 -1278
 -1279 -1280 Ub1316 -1317 [Xb1337.1]
 o-pi-de-o-mo[Ub1318.2
 o-pi-ke-de-i An1281.2
 o-pi-ke-wi-ri-je-u Ta709.3
 o-pi-ra-i-ja Cn1286
 o-ra-qe-te[Un1321.1

pa-ka PY,MY An1281.3
 pa-ma-ko Sb1314.1
 pa-ra-we Sb1314.3
 pa-ro KN,PY Un1320.[1,2],3,4 -1321.4
 pe-de-we-sa PY Ta709.2
 pe-di-e (pe-di-je-we PY) Wr1328
 pe-di-je-wi-ja (pe-di-je-we PY) Va1324.2
 pe-di-ra Ub1318.3
 pe-di-ro Ub1318.5
 pe-di-ro-i Ub1318.7
 J-pe-ja Ub1318.6
 pe-re KN,PY Cc1284 Sb1314.2
 pe-re-i-to Wr1327
 pe-re-ke-u (pe-re-ke-we PY,MY) Cn1287.5
 pe-ru-si-nu-wa PY Ub1316
 pe-ru-si-nwa-o (pe-ru-si-nwa KN,MY) Ub1317
 pe-ti-ni-jo (pe-to-no PY) Ac1275
 pi-*82 PY Ac1276
 po-pa₂-te-u (po-pa₂ KN,PY) Qa1295
 po-qe-wi-ja (po-pa₂ KN,PY) Sb1315.4
 po-qe-wi-ja-i (po-pa₂ KN,PY) An1282.2
 po-ro-e-ke-te-ri-ja (po-ro-e-ke PY) Ta709.1
 [po]-ti-ni-ja KN,PY An1281.1,9
 po-ti-ni-ja-wi-jo (po-ti-ni-ja-we-jo KN,PY)
 Qa1299
 [.]po-to-to Un1322.4
 pu-ti-ja PY Qa1294

qe-[Xn1342.1

qe-re-ma-o KN Qa1295	ti-se Un1321.4
qe-ta-ko PY Cn1287.4	ti-ta-ra An1281.12
]qe Un1321.3	to-me-o Xn1342.1
qo-qo-ta-o PY Ea757	to-o Un1321.3
ra-ma-o (ra-ma-jo PY) Ub1316	to-pa Ub1318.3
ra-pte-ri-ja (ra-pte PY) Sb1315.2]to-ro Xn1261.1
re-si-wo An1281.9	to-sa KN,PY Sa843 Un1321.2
re-u-ko-to Un1319.3	to-ze-u An1281.8
re-u-si-wo-qe PY An1281.3	u-po KN Ub1318.6
ro-pi-no[Xn1341.5	we-[Ub1318.6
ro-u-si-je-wi-ja (ro-u-si-jo PY) Sb1315.2	we-a ₂ -no[.]no[Un1322.4,[5]
[.]ro An1281.10	we-e-wi-ja Ub1318.4
ru-de-a ₂ Ub1318.3	we-je-ke-a ₂ PY Sa843
ru-ko-ro PY An1281.13	we-je-ke-e PY Sa1264 -1265 -1266[-1267][-1268]
ru-na KN Un1320.4	-1313
]ru-wo-ja Sb1315.1	we-ke PY Ta709.3
se-ri-no-wo-te Qa1290	we-re-ne-ja Ub1318.7
se-we-ri-ko-jo Sa753	wi-ri-no (wi-ri-ne-jo KN) Ub1318.5
[.]so-ro An1281.6	wo-di-je-ja KN,PY Ub1318.3
ta-ni-ko-qe PY An1281.5	wo-ka PY Sa753 -1264 -1265 -1266 -1267
]ta-ri-ja Un1321.1]wo-ro-ma-ta Ub1318.2
]te Xn1261.2	wo-ro-qo-ta Qa1305
te-mi-de-we-te (te-mi-*71-te KN) Sa1266	wo-to-mo Sb1314.2
te-mi-ti-jo (ti-mi-ti-ja PY) Ac1278	wo-wo KN,PY Sb1315.3
te-re-d ₂ Cn1287.2]za Ub1318.3
te-u-ke-pi (o-pi-te-u-ke-e-u PY) Sb1315.1	za-te[.]o[Un1322.3
]te-we Ub1318.5,7	ze-u-ke-si (ze-u-ke-u-si PY) Ub1318.4
[.]ti-a-ke-si An1281.9	*85-ke-i-ja-te-we Ub1318.1,2
ti-ri-po PY Ta709.3	*85-ke-i-ja-te-we-i An1281.4,[10]
ti-ri-we-ro Un1320.2	

LIST OF IDEOGRAMS AND SYLLABIC SIGNS USED AS IDEOGRAMS

KNOWN IDEOGRAMS

* ₁₀₀ MAN	Ac1272 -1273 -1274 -1275 -1276 -1277 -1278 -1279 -1280 An1281.3,5,6,7,8,9,10,11,12, 13 -1282.1,2,3	* ₁₁₁ III * ₁₁₅ Weight * ₁₁₆ Weight * ₁₁₇ Weight * ₇₄ ZE	Volume Weight Weight Weight ZE	Fr1260 Ja1288 Ja1288 Ja1288 Sa1264 -1265 -1266 -1269 -1270 Sb1315.4
* _{106a} RAM	Cc1283 -1285 Wr1331	* ₆₁ O		Un1319.2 -1322.2,4
* ₂₁ SHEEP	Cn1286	* ₁₂₀ WHEAT		Un1319.1,3 -1321.3 -1322.
* _{107a} HE-GOAT	Wr1325 -1334			1,2,5
* _{107b} SHE-GOAT	Cc1258 Cn1287.1,2,3,4,5,6, 7,8,9,10	* ₃₀ FIGS * ₁₃₀ OLIVE OIL		Un1322.1,2 Fr1260
* ₂₂ GOAT	Cc1284 Cn1286	* ₁₃₁ WINE		Un1321.2

*140	BRONZE	Jai288
*31	LINEN	Na856
*243	WHEEL	Sbi3143
	WHEEL+TE	Sai1264 -1265 -1268

KNOWN IDEOGRAPHIC USES OF SYLLABIC SIGNS

*1	DA	Aa1263
*3	PA	Un1319.2,3
*40	WI	Wri1328 -1332
*59	TA	Aa1263
*72	PE	Un1319.1,2

NEW IDEOGRAMS

*189	KE in frame	Qai1259 -1289 -1292 -1293 -1294 -1295 -1296 -1297 -1298 -1299 -1300 -1301 -1302 -1307 -1308
*214	Vessel	Ta709.1

NEW IDEOGRAPHIC USES OF SYLLABIC SIGNS

*8	A	Un1320.1,2,3,4
*25	A ₂	Un1319.1,2,3
*38	E	Ubi1316 -1317 -1318.5,6 Un1319.2,3,4
*42	WO	Un1319.3
*81	KU	Un1319.2

COMMENTARY

All the tablets found in 1957 near the Archives Room, both new pieces of old tablets and new tablets or fragments, belong to well-known types and are inscribed by known hands. The new words and names merit comment.

Ta709 *Pa-ko-to* is now seen to be a vessel, perhaps the dual of φάκται· ληροί, σιτύαι, πύελοι (Hesych.). *A-pe-te-me-ne* seems to be the dual of an adjective in -μην (cp. ἀπόθμην) from *πενθσμα (πείσμα, cp. Lat. *offendimentum*; for the retention of the dental compare *a-ra-ro-mo-te-me-na* as from ἵρμοσμένη) and meaning "unroped." That large jars were often roped for ease of transport or to prevent breakage is suggested by the plastic ropes on so many pithoi.

Po-ro-e-ke-te-ri-ja must be "a feminine noun similar in structure to βακτηρία" (*Docs.* p. 337). It may be related to ποτεκχετήρια· τορνευτήρια (Hesych.), i.e. turner's chisels. The Hesychian word seems to be the neuter diminutive of a feminine noun (cp. βακτήριον from βακτηρία). The variation in the compounded preposition between προ- and προσ- may depend on the type of turning to be effected with the chisel. For the ideogram as a drawing of a chisel, see Flinders Petrie, *Tools and Weapons*

pp. 20f (and Plate xxi, C95): "for graving by pressure the handle was fitted on the side of the blade." *Po-ro-e-ke*, which describes wood and ivory tables (Ta713.2 -715.3), may be related to this word and indicate that the tables were worked with a turner's chisel. If *po-ro-e-ke* can thus be interpreted as "with bevelled edge," it will be contrasted, as its use suggests, with *a-pi-go-to*, taken by Ventris as "encircled," by Chadwick as "with a broad edging," and so perhaps "with a rim running around."

E-kara is ἐσχάρα. The first example is described as having a rim (*a-pi-go-to*) and feet (*pe-de-we-sa*, *πεδφερο, cp. *τερμιδφερε on Sa1266). The second has an upright crane(?) (*i-to-we-sa*, *ιττροφερο), feet, and two kinds of decoration (?) (*so-we-ne-ja* *85-de-we-sa-ge). These are apparently the movable tripod hearths found at Knossos (Evans, *Palace of Minos* I p. 390; IV pp. 151, 179) and Mycenae (Wace, *BSA* 25[1921/22, 1922/23] 224f) and Pylos (Blegen, *AJA* 57[1953]61).

O-pi-ke-wi-ri-je-u is parallel in form and use to *ai?-ke-u* in this same line and *ai-ke-u* in Ta641.1. Its meaning is obscure.

Sa753 provides a new name in the genitive case (*se-we-ri-ko-jo*) and the first instance of *wo-ka* without *we-je-ke-e*.

Na856. *Ke* is now seen to be an abbreviation; Na1041 was probably similar.

Sa1265 provides a new name in the genitive case (*a-re-pa-to*).

Sa1266 provides a new name in the genitive (*e-pi-wo-pa-ta-o*), the second element of which may be an alternate spelling of *-qo-ta-o*. *Te-mi-de-we-te* has much the same position as *te-mi-*71-te/ta* on the chariot tablets of Knossos and Pylos. If therefore the symbol *71 should be given the value *dwe* (cp. *87 as *kwe*), there is reason to believe that *τερμίς* originally had a stem ending in *delta* and that the *-feis* ending was added directly to the stem of third-declension nouns (cp. *pe-de-we-sa* and *to-qi-de-we-sa*).

Sa1267 *E-te-wa-jo* should probably be *e-te-wa-jo-jo* as in Sa769.

The other tablets of 1957, almost all of which were found in Room 87 of the new NE wing of the palace, do not have exact parallels among published tablets and fit only roughly into the established classification. At the same time their variety is such that it is not possible to say that the activities housed in Room 87 were of an extremely specialized nature, as with the tablets found in 1955. A brief

examination of the main types will make this clear.

Of the nine Ac tablets, six preserve the town-name. Of these six, four give towns which belong to the Nine: *me-ta-pa*, *a-ke-re-wa*, *pi*-*82 and *ka-ra-do-ro*. The fifth, *pe-ti-ni-jo*, should be the adjective from *pe-to-no* (cp. *o-wi-ti-ni-jo* from *o-wi-to-no*), the largest of the Nine Towns, since here the contingent of *pe-ti-ni-jo* bears about the same proportion to the others as it does in the other Nine-town lists (Cn608 Vn19-20). *Te-mi-ti-jo*, the sixth, may be similarly related to *ti-mi-to a-ke-e*, one of the other Seven. The anonymous and summary form of the record on these tablets (comparable to Ad and in contrast to An) makes it more likely that these groups of men presented and owed to the palace are slaves or workmen for some activity of which Room 87 was the headquarters than that they were fighting men being mobilized. All the Ac tablets are written by one hand.

An1281 must be read in connection with Fn50, where the names in lines 11-13 are *85-[.]*ja-te-wo*, *mi-jo-[pa₂]¹* and *a-pi-[]*. The similar juxtaposition of *85-*ke-i-ja-te-we-i*, *mi-jo-pa₂* and *a-pi-e-ra* in *An1281.4,7,8,10,11,13* suggests that we should restore *85-[*ke-i*]*ja-te-wo* in Fn50.11² and *a-pi-[e-ra]* in Fn50.13. Since these names in Fn50.11-13 appear to be in the genitive case, *mi-jo-pa₂* and *a-pi-e-ra* must be feminine (*Docs.* p. 217). On *An1281* *o-pi-ke-de-i* (certainly) and *85-*ke-i-ja-te-we-i* (possibly) are in the dative case, so that the feminine names following in parallel construction (as on Fn50) should also be interpreted as datives. Of the text of *An1281* as a whole various interpretations are possible, partly because of the mutilated state of the operative word in line 2, but it is likely that the tablet lists men (nominative) serving Potnia Hippeia (genitive or dative) for various persons (dative). That the service might be industrial is suggested by the juxtaposition of these persons' slaves with artisans of all sorts on Fn50 and by the appearance of at least three of the servers' names in the Jn tablets (*re-u-si-wo*, *o-na-se-u*, *po-so-ro*). *An1281* seems to have been written by the same hand as the Ac tablets.

An1282 records numbers of men assigned to dative plurals. *A-mo-si* is obviously the dative of *a-mo-ta*, which is thereby linked to *ἄρματα* - *ἄρματι* rather than to *ἄρμοστά* - *ἄρμοστοῖς*. *Po-qe-wi-ja-i*

¹ Bennett restored this name from Fn867, in the first line of which we may perhaps now read *i-qe[ja]*.

² Although Bennett has restored only a single sign in the la-

suggests φορβεῖαις (halters) and *a-qi-ja-i ἀξίαις* (axes). *Do-ka-ma-i* might be either δοχμαῖς or δραχμαῖς, but neither of these words refers in classical times to a product of the sort the context requires. *Ki-u-ro-i* may be related to γυλιός. At all events, the assignment of men to products like under-carriages, halters and axes suggests manufacture, repair, or care of these things.

The Cc tablets are too few and fragmentary to indicate anything definite beyond the fact that some records of domestic animals were kept in Room 87. More informative are the two Cn tablets. On Cn 1286 it is tempting to read *o-ni-ra-i-ja* as *έπιλης (cp. ἔπιλης - taken as booty), but in the other appearances of this stem on the tablets (Ab586 Ad686 Aa807 *ra-wi-ja-ja* describing captive women) the digamma is always present. One close parallel for this unlikely variation exists between *e-ra-wo* (Np-1039) and *e-ra-jo* (V431.1 Fh1059) at Knossos (cp. *e-ra-wo* on Pylos tablets of 1955). Another possible connection for *o-pi-ra-i-ja* might be with λαυρήνος, the etymology of which appears to be unknown. But whatever the subject, the large size of the tablet and the emptiness of all but the first line seem to indicate a disparity between anticipation and achievement.

Cn1287 lists the names of ten men, five of whom are further identified either by a trade-name or as a servant. The she-goats may be either assigned to them or due from them. The labyrinth on the reverse of the tablet, for whatever purpose it may have been intended, seems to have been incised before the record on the obverse: the incisions were made in somewhat softer clay and are slightly closed as if from being held in the hand while the obverse was inscribed.

Ja1288 shows that some record of bronze was kept in Room 87 and so permits the assumption that it was used in the activities centered there. *Ka-ra-wi-ne* is probably dative singular, perhaps of καλαρίνες ὄχετοι (a Laconian word, according to Hesychius, but not necessarily of Dorian origin).

Of the twenty-four tablets assigned to the Qa-class only fourteen actually have the ideogram *189. The other ten almost certainly belong, however, by reason of form, identity of hand, and place of finding. Those which are sufficiently preserved to give a complete text do not show complete uniformity cuna, the drawing of the tablet shows adequate space for two signs.

but require three different formulas: 1) a personal name only (Qa1297); 2) a personal name followed by an official title or description in the same case (Qa1298 1299 are certain; Qa1298-1295-1296-1301 are probable); 3) a personal name or a title followed by a place-name (Qa1294-1304 are certain; Qa1290 is probable). If the official character of the persons listed and the small numbers in which *189 is counted are at all significant, and if KE in a frame is to be thought of as an initial syllable, the ideogram may stand for something like *ke-ra* (*γέρας*) or *ke-se-ne-wi-ja* (*ξείρια*).

Sb1314 is almost completely obscure and has been assigned to this class on the basis of an uncertain *WHEEL* and a place of finding close to An1282 and *Sb1315*. *A-wa-ra-ka-na-o* may be genitive singular of a masculine name, or genitive plural of a feminine noun, with *a-wa-ra-ka-na* in line 3 as the corresponding nominative. *Pa-ma-ko* may be *Pharmakos*, the subject of the verb *pe-re*.

Sb1315 is concerned with horse-trappings and leather: bridles fitted with armor, red hides, white (?) hides, sewn bridles, new bridles without headbands, headbands, (another sort of) bridles, rich (*ἀφνειός?*) bridles, rich (?) headbands with new halters.

Ub1316 and *Ub1317* each give a personal name followed by "last year's debt" and the syllabic sign *E* with a number. On both, as if by an afterthought, a word is written above. Since that word begins with *e* and is in the same case as "last year's," it may be taken as the thing which is abbreviated and counted as owing. The differences between the two tablets require comment: in syntax *Ub1316* uses nominative or accusative for both the "debt" and the things owed while *Ub1317* puts the things owed in the genitive plural; in spelling *Ub1316* gives *e-ra-pi-ja* where *Ub1317* has *e-ra-ti-ja-o*. Since a *ti* is only an unfinished *pi*, it is easier to assume that *e-ra-ti-ja-o* is carelessly written for *e-ra-pi-ja-o* than that these two similar tablets concern two different things which have the same ideogram. For the interpretation of *e-ra-pi-ja* the most likely possibility is an adjectival form (in the feminine to modify *διφθέρα*) from *ἔλαφος*.

Ub1318 also is concerned with hides and leather (*διφθέρα, ρύνον*). The hides seem to be of various sorts: *we-e-wi-ja* (*νειος*), *we-re-ne-ja* (from *ρήν?*), *ai-za* (*αιγιος*), and the *E* ideogram which may be

deerskins. There are shoes (*πέδιλα, πέδιλον* and *πεδίλοις*) and pairs (*ζεύγεσι*). *Me-ti-ja-no* in line 3 is probably the same masculine name which occurs in *Vn1191*, where it is in the genitive case and accompanied by *wo-di-je-ja*. Here it is accompanied later in the line by *wo-di-je-ja*, but must be nominative, which suggests that the baffling *85-*ke-i-ja-te-we* (see An1281.4,10) is also nominative. It appears that various persons are providing skins or making leather products.

The Un texts are too fragmentary to indicate anything more than the fact that supplies of various sorts were recorded.

Va1323 records more chariot equipment: *ἀξονες κακίονες*.

The clay sealings (Wr1325-1334) were found in both Rooms 86 and 87. Those with *o-pa* are to be compared with *Ws1704* and may be interpreted as identifying what they sealed as feudal contributions, the exact nature of which may be indicated by the ideogram on the obverse (sheep, goats, leather). The ideogram on *Wr1327* is unfortunately mutilated, but *pe-re-i-to* seems to be *πλεῖστον*.

From the varied nature and purpose of these texts and groups of texts from Rooms 86 and 87 a few definite conclusions may be drawn: some activity of the Nine Towns (and more) was centered here; that activity used leather, metal and domestic animals; here also feudal contributions were received. Many speculative conclusions might be added; one example of a possible interpretation embracing the whole group of tablets might be as follows: these are some of the records belonging to the palace harness-shop and smithy, to which workmen were sent from outlying towns (Ac) and contributed by particular persons (An1281). These workmen were assigned to the production or repair of various leather and metal objects (An1282). Sheep and goats were requisitioned to supply leather (Cc, Cn, Wr). Bronze was apportioned for fittings (Ja); inventories of harnesses, etc., were kept (Sb); shoes were made out of hides, some of which were still owed from the previous year (Ub). The KE in a frame that is awarded to or received from priests and other officials may then be the horns (*ke-ra-a*) from the animals or one of the products manufactured here (cf. *ke-ra-e* in Sa840).



A Class of Bronze Handles of the Archaic and Classical Periods*

DOROTHY KENT HILL

PLATES 50-53

A handle in the form of a nude standing youth was a stock feature on bronze vessels in Greece and Italy during the archaic and immediately subsequent ages. More than forty such vases or detached handles are known. These researches which started with a handle in Baltimore, no. 20 below, collect the available material and distinguish, by the mechanical attachment, handles for hydriai of two kinds, trefoil-mouthed oinochoai, *Schnabelkannen* and amphoras of more than one type—in fact, for all the major large vases except kraters. This classification is illuminating for the history of the type. Though I cannot claim to have located all examples and recognized the style in every instance and to have produced such a comprehensive study as was envisioned by Payne,¹ this paper may contribute toward an understanding of archaic bronze sculpture. Excluded from it are the patera handles previously studied by Gjødesen and Amandry² and the tumbler handles from Praeneste. There has been no general publication of these handles but the hydriai are a sub-class of the bronze hydriai studied by Polites.³

The diffusion was wide; these handles were used all about the Mediterranean. The almost invariable scheme is the youth poised with his extended toes flanked by two rams, grasping the tails of two couching lions. Commonly there is a palmette at the very bottom. The vases, like the handles themselves, had standardized forms, and even a very small handle fragment suggests not only the complete decorative repertoire but the form of the whole vase.

In the first seven examples listed below the handle was attached to a hydria by means of a "holder" projecting horizontally either below both or above and below the lip.

1. Volo, Archaeological Museum. Hydria from Trikala. Verdeles, *ArchEph* (1953-54) pt. 1, 189,

* Parts of this paper were presented at the Fifty-Seventh General Meeting of the Archaeological Institute of America: *AIA* 60 (1956) 178.

¹ Payne, *Necrocorinthia* 221, note 2.

199; Vallet and Villard, *BCH* 79 (1955) 60. The youth kneels instead of standing; sphinxes, not lions, at the front of the holder, off the edge of the vase.

2. Oxford, Ashmolean Museum 1890-221. Handle. Polites, *ArchEph* (1936) 166, no. 3; 169, fig. 20; 170, fig. 21. No trace of anything below or beside feet.

3. Paris, Louvre 2784. Handle, broken at knees. From Volo. Plate 50, fig. 1. De Ridder, *Bronzes du Louvre* 2, 117, pl. 100; *Les Bronzes Antiques*, 105, fig. 7; Reinach, *Rép. de la Stat.*, 2, 90, 4.

4. Athens, National Museum 6650, 6588 and other number. Handle; one lion and one ram missing. Excavated on the Acropolis and on the North Slope. De Ridder, *Bronzes trouvés sur l'Acropole* 168f, no. 468, and 250f, no. 705, fig. 222; G. M. Young *JHS* 57 (1937) 124, pl. v.

5. Berlin, Staatliche Museen 7487. Handle, man above the waist, holder, lions except heads. From Delphi. (Temporarily in Neues Museum, Wiesbaden; I am obliged to Dr. H. Biehn for a drawing of the profile view.) *AZ* (1881) 25 pl. 2; *Fouilles de Delphes* 5, 91, no. 428, fig. 309; Gjødesen, *ActaA* 15 (1944) 127f, no. 87, and 150f, fig. 10; Neugebauer, *Führer durch das Antiquarium. I. Bronzen* (1924) 31.

First called a mirror support, it was taken to be a patera handle by Gjødesen who admitted that it agrees with his series in no respect. It was recognized as an early hydria handle by Neugebauer. The form of the holder and the pose of the lions beside the mouth are identical with numbers 1 and 3.

6. Olympia, Museum. One lion with large part of holder; part of tail, extending free.

7. Athens, National Museum. Found on Acropolis. Lower part of handle with feet of nude figure above palmette, flanked by animals. De Ridder,

² Gjødesen, *ActaA* 15 (1944) 101-187; Amandry, *MonPiot* 47 (1953) 47-70.

³ Polites, *ArchEph* (1936) 147-174.

Bronzes trouvés sur l'Acropole 58, no. 169. Compare the hatched bar between the animals and the palmette with the Grächwil hydria.⁴ Probably the vase was a hydria of the early (with holder) type.

Only one hydria is preserved and it has a rounded, rather formless shoulder, a neck sharply offset from the shoulder and slightly concave, an almost vertical lip, a base separately made, and horizontal handles with vertical rolls and ducks' heads. Presumably 3, 5, 6 and 7 were similar. 2 and 4, however, resemble the following class and they suggest such a hydria as 8 below—that is, one with angular shoulder. Except for no. 2, of which the provenience is unknown, all were found in mainland Greece and all are of relatively early date. The problem of artistic schools will be discussed below but we may anticipate by observing that the seven pieces are not sufficiently similar to be the work of one school, yet do not contrast sharply.

The following seven items, nos. 8-14, are hydriai to which the handle is attached by rivets passing between or through the forepaws of the lions into the lip of the vase without additional reinforcement. Since the lion fits against the lip it is flattened at the back, in fact it is really in relief. The appearance is identical with nos. 2 and 4 above.

8. Berlin, Staatliche Museen 8467. Hydria. Excavated at Randazzo. Plate 51, fig. 2. Neugebauer, *Führer* 68, pl. 26; *AA* (1925) 197f; *Olympia* IV, 144; Fölzer, *Die Hydria* 69, no. 85, pl. 7; Lamb, *Greek and Roman Bronzes* 134f, pl. xlvi; Polites, *ArchEph* (1936) 166-67; Vallet and Villard, *BCH* 79 (1955) 60.

9. Boston, Museum of Fine Arts 99.460. Handle. From near Patras. Polites, *ArchEph* (1936) 166, no. 6, fig. 23; *AA* (1900) 217f, no. 16; Vallet and Villard, *BCH* 79 (1955) 60; *Annual Report, M.F.A.* (1899) 43, no. 16.

10. Boston, Museum of Fine Arts 88.595. Handle, lower part missing. From Sparta. Polites, *ArchEph* (1936) 166, no. 5, pl. 4; *GBA*, s. 6, 19 (1938, pt. 1) 204, fig. 12; Reinach, *Rép. de la Stat.* 2, 90, 2; *Bonner Studien—Kekulé gewidmet* (1890) 176.

11. Sparta, Museum. Handle, torso of youth only. Excavated on the Spartan Acropolis. Lamb, *BSA* 28 (1926-27) 83, pl. ix, 2; *ActaA* 15 (1944) 150, note 36. Too little is preserved to permit positive identification. I place the handle here because of its

stylistic similarity to no. 10. The vase could be an oinochoe.

12. Paris, Louvre 2785. Handle. From Monemvasia. Plate 50, fig. 3. De Ridder, *Bronzes du Louvre* 2, 117, no. 2785; Polites, *ArchEph* (1936) 166, no. 4, fig. 22. There is no holder; Young must refer to the holder of Louvre 2784, our no. 3 and fig. 1: *JHS* 57 (1937) 124.

13. Paris, Petit Palais. Handle attached to oinochoe. Excavated at Sala Consilina. M. Mayer, *Apulien* 234; *NS* (1896) 172, no. 1 and *NS* (1897) 164, a, fig. 8; Neugebauer, *RM* 38-39 (1923-24) 343ff, no. 1, pl. viii; Sale Catalogue, Hirsch Collection, Paris, Drouot (1921) 32, no. 231, pl. 8; Polites, *ArchEph* (1936) 166, no. 1, fig. 19; Vallet and Villard, *BCH* 79 (1955) 60, fig. 10.

Although it has been generally accepted that this handle belongs to the oinochoe to which it is attached, I am convinced that it was originally made for a hydria. It was found detached; see *NS* 1896. The lions on an oinochoe handle would be in the round and they would sit upon the rim; cf. nos. 15ff below, figs. 4-15.

14. Amsterdam, Allard Pierson Collection of the University. Lion, left end of handle. Van Gulik, *Catalogue of the Bronzes (Archaeologisch-Historische Bijdragen, VII)* 85f, no. 136, pl. xxi.

The lion was recognized by Van Gulik as belonging to a hydria with human figure. The tail is cut free, proving this contention, for otherwise it would be in relief and the hind quarters would be suppressed; cf. the hydria handle in Boston, *ArchEph* (1936) 162, fig. 14.

Only one complete hydria (no. 8) is preserved and it differs from the Volo hydria (no. 1 above) in having a rather sharp shoulder. Probably all were of this form, which is the same as those studied by Polites and more recently discovered at Paestum.⁵ The anthropomorphous handles were treated by Polites as a sub-class (type VI) of his large group of metal hydriai, with which they share many details, such as the lions, the rams and the palmette. The form is that of contemporary pottery hydriai except that the pottery examples rarely have the large spreading base. Of these seven pieces, absolutely identical in their decorative details, four are from the Peloponnes, one is from South Italy, one from Sicily and one of unknown origin. None of them is early and most date after 530. It appears

⁴ For the bibliography see Bloesch, *Antike Kunst in der Schweiz*, 148.

⁵ *BdA* 40 (1955) 53ff; *AJA* 59 (1955) 305ff, pls. 85f.

that by 530 bronze workers had decided that the heavy holder they had previously employed was unnecessary and they attached handles to vases by simpler means.

The following are handles of trefoil-mouthed oinochoai. The lions, fastened by rivets from underneath, recline upon the lip, looking along the rim, whereas the lions of the hydria turn their necks to look away from the vase. The youth arches his back so as to rest his head upon the rim and his hair falls inside.

15. Sofia, National Museum. Oinochoe. Excavated at Trebenishte. Filow and Schkorpil, *Die archaische Nekropole von Trebenishte am Ochrida-See* 59ff, no. 72, fig. 63, pl. xi; Polites, *ArchEph* (1936) 166, note 1; Payne, *Necrocorinthia* 219. The rams are omitted.

16. London, British Museum 2473. Oinochoe, lower part restored. From Ruvo. Plate 50, figs. 4, 5. Walters, *Catalogue of Bronzes—B.M.*, 323. The youth holds the tails of the beasts as usual, not the hind legs, as Walters supposes.

17. Karlsruhe, Badisches Landesmuseum. Oinochoe. Excavated at San Ginesio. *NS* (1886) 41f, figs. A, C; Schumacher, *Beschreibung—Bronzen zu Karlsruhe* 97f, no. 527, pl. x, 1 and pl. xvii; Ducati, *Storia dell'Arte Etrusca* 291, 310 note 71, pl. 118, fig. 314; Montelius, *La civilisation primitive en Italie*, 2, pl. 161, 10; *AA* (1890) 5f, no. 1. The body has in relief two animal conflicts and a seated lion.

18. Carthage, Musée Lavigerie de Saint Louis de Carthage. Handle. Reinach, *Rép. de la Stat.* 3, 25, 6; Delattre, *Musée Lavigerie* pl. 30, 1. The handle is complete but the illustrations omit the greater part of the torso. The rams recline on tendrils emerging from the palmette and extending the full ram's length; cf. no. 20.

19. Paris, Louvre 2787. Handle. De Ridder, *Bronzes du Louvre* 2, 118, pl. 100; Vallet and Villard, *BCH* 79 (1955) 60.

20. Baltimore, Walters Art Gallery 54.912. Handle. Plate 51, figs. 6-8. Sale Catalogue, Carmichael Collection (1926), no. 330. Gorgon in lower plaque, as no. 21; rams supported by long tendrils rolled at

both ends; cf. no. 18. A fragment of the tongue edge of the vase is riveted below the lions.

21. Athens, Agora Museum. Lower part of handle. Excavated on North Slope of the Acropolis. Plate 50, fig. 9. Legs of youth, prone rams on short tendrils, Gorgoneion instead of the usual palmette. Possibly belongs to a hydria, for others with Gorgons are known, though none with Gorgon and human figure.⁶

22. Copenhagen, Thorvaldsens Museum 273. Handle. Acquired in Italy by Thorvaldsen. Plate 52, figs. 10, 11. L. Müller, *Musée-Thorvaldsen. 3^{me} Partie: Antiquités*, Sections I and II (Copenhagen 1847) 185. Piece of the trefoil rim of the vase attached below lions. They cross their forepaws.

23. Málaga, private collection. Handle. From the Málagan Alcazaba. García y Bellido, *AIA* 53 (1949) 151, pl. xxi, b; *BCH* 79 (1955) 60; Sichtermann *AA* (1954) 394ff, fig. 67; Giménez Reyna, *Memoria arqueológica de la Provincia de Málaga hasta 1946 (Informes y Memorias* 12, Madrid 1946) 58, pl. 31. Man-headed bulls (one missing) instead of lions; Harpies or Sirens instead of rams.

24. London, British Museum 582. Handle, one ram missing. Acquired by Payne Knight through Sir W. Hamilton in Naples. Plate 52, figs. 12, 13. Walters, *Catalogue of Bronzes—B.M.*, 84.

25. London, British Museum 581. Handle, one lion missing. Plate 53, figs. 14, 15. Walters, *Catalogue of Bronzes—B.M.*, 84.

26. Paris, Louvre 2786. Handle, upper part of figure and one lion preserved. From Delphi. De Ridder, *Bronzes du Louvre* 2, 117f, pl. 100.

Three vessels are preserved and it is reasonably sure that the nine detached handles belong to others of the same shape. The three have trefoil mouths and that all had the same is shown by the invariable broken curve of the handle's upper member and the attached vase edge in a few instances. The oinochoe has a fairly straight neck, sharply offset from the shoulder, a body as broad in its lower part as in its upper, and a separately cast base. This type is common in other metalware with handles of various kinds but rare in pottery.⁷ The twelve

⁶ But the terracotta copy, called South Italic, mid fifth century, by Rüts, *From the Collections of the Ny Carlsberg Glyptothek* 2 (1938) 164, fig. 25 on 167, is a copy of a bronze hydria handle, not a mirror as Rüts supposes. It has Gorgoneion and long supports under the rams.

⁷ A list of metal vases of this shape with a particular set of decorative details, Beazley and Magi, *La Raccolta Benedetto Guglielmi nel Museo Gregorio Etrusco* 2 (1941) 190f. Others

of the same shape are Berlin 10409, Neugebauer, *Führer* 101, and RM 38-39 (1923-24) 349, fig. 3; from Trebenishte, Filow, *Die archaische Nekropole von Trebenishte* 61f, figs. 64, 65; from near Seville, *Ampurias* 5, 251f, and García y Bellido, *Hispania Graeca* pl. xxxiii, fig. 18; from Valdegamas, *ArchEsp Arq* 26 (1953) 236ff, figs. 4-9. Magi notes a single example in black glazed ware: *Clara Rhodos* 4 (1931) 193, figs. 208, 209. Something rather like it is common in bucchero.

oinochoe handles are fairly consistent in decorative details but they show the widest disparity of date, style and provenience. Only one, no. 26, has positive Greek provenience. The others are from sites scattered about the Mediterranean, and while some can be attributed to mainland Greek centers, certain others are definitely Etruscan in origin (see below).

The following unique item belongs to a trefoil-mouthed oinochoe and should be considered at this point.

27. New York, Metropolitan Museum of Art CB448. Handle from Curium or Dali, Cyprus. Richter, *Greek, Etruscan and Roman Bronzes* 45f, no. 66; Cesnola, *Cyprus*, pl. iv opp. 84; Myres, *Cesnola Handbook* 498, no. 5012; *Cesnola Atlas* III, pl. lxvi, 3. The figure, which has been considered female but may merely be incomplete, stands on a Gorgoneion with rams beside the feet; cf. nos. 20, 21. The arrangement of head and hair is for attachment to a trefoil-mouthed oinochoe (see Richter, *loc. cit.*). The use of lions' heads without the bodies resembles the *Schnabelkannen*. It must come from an oinochoe like the preceding and the style is Greek. It is of late date, contemporary with the *Schnabelkannen*.

The following are examples of the long-beaked jug commonly called *Schnabelkanne*. The lions rest upon the rim, which is plain, not trefoil, so that the upper part of the handle has a smooth, unbroken curve. In photographs the top of the handle may not be visible, so some confusion with the other oinochoe handles is possible. The *Schnabelkanne* usually has an elongated figure.

28. Florence, Museo Archeologico Etrusco 79111. *Schnabelkanne*, upper part with handle. From Ascoli, Picenum. Jacobsthal and Langsdorff, *Die Bronzeschnabelkannen* 93, no. 105, pl. 9. The youth stands above a plaque composed of palmette, two snakes and a Silen's head, with two leaves at the top. The animals are reduced to two bars ending in panther heads. I cannot, from the illustration, recognize the action of the hands, which are raised to the usual level; cf. nos. 29, 32.

29. New York, Metropolitan Museum of Art 14.130.3. Handle. Plate 53, fig. 16. Possibly the same as Jacobsthal and Langsdorff, *op. cit.* 93, no. 106, though the feet do not actually touch the Silen's head, as is there stated. The hands are raised, outstretched, palms outward. Panthers' heads turn toward the vase.

30. Paris, Bibliothèque Nationale 1445. Handle. Babelon and Blanchet, *Catalogue—Bronzes—Bibliothèque Nationale* 582. Youth stands above palmette crowned by double horse protomé, holding tails of two lions that turn heads toward the vase.

31. Paris, Louvre 2656. Handle, upper animals missing; formerly incorrectly attached to a stamnos. De Ridder, *Bronzes du Louvre* 2, 107f, pl. 97. Lower plaque with horses, as no. 30.

32. Speyer, Historisches Museum der Pfalz B99. *Schnabelkanne*, neck, mouth, and youth above knees preserved. From Dürkheim. Jacobsthal and Langsdorff, *op. cit.* 22, 93, no. 114, pl. 12; Lindenschmit, *Die Alterthümer unserer heidnischen Vorzeit*, 2 H.II, pl. 2, 13. Stylized animals, perhaps panthers, hold heads erect, have suppressed hind quarters, no tails; youth touches the vase rim with outstretched fingers.

33. Trier, Rheinisches Landesmuseum G 104. *Schnabelkanne*. Excavated at Schwarzenbach, Birkenfeld. Jacobsthal and Langsdorff, *Die Bronzeschnabelkannen* 26, 93 etc., no. 113, pl. 11; Baldes and Behrens, *Birkenfeld* 51f, pl. 7; *AA* (1923-24) 317f, fig. 8; Reinach, *Rép. de la Stat.* 5, 33, 7; *Mitteilungen des Vereins für Heimatkunde im Landesteil Birkenfeld* I, 3 (July 1927) 38f; Behn, *Mainzer Zeitschrift* 6 (1911) 6f; Schumacher in Ebert, *Reallexikon* 11, 373, s.v. *Schwarzenbach*; Neugebauer, *Jdl* 58 (1943) 238ff, figs. 26, 27; Lindenschmit, *op. cit.* 2, H.II, pl. 3, no. 3. The lions sit upright, while the youth holds their tails. The jug has horizontal mouth with sharply slanted beak. On the plaque at the base of the handle, two men in conflict across the head of an animal.

34. Formerly Cook Collection. Lower part of handle, with youth's feet above palmette, two ducks' heads, two Sirens with spread wings. Smith and C. Hutton, *Catalogue of Antiquities—Wyndham Francis Cook* 2 (1908) 120f, no. 71, pl. XLIII. Probably from a *Schnabelkanne* (cf. Jacobsthal and Langsdorff, *op. cit.* pl. 42), but possibly from an amphora.

35. Florence, Museo Archeologico Etrusco. Handle. Ducati, *Storia dell'Arte Etrusca* 324, pl. 140, fig. 363, 2; Gerhard, *Antike Bildwerke* pl. ci, 4; *MonAnt* 7 (1897) 347f, fig. 23; Milani, *Il R. Museo Archeologico di Firenze* 131, pl. xxii 3; Reinach, *Rép. de la Stat.* 2, 90, 3; Giglioli, *L'Arte Etrusca*, pl. ccix, fig. 2; Riis, *Tyrrhenika* 85; Neugebauer, *AA* (1923-24) 318, note 1.

Two men recline upon the rim in the place of

the usual lions, and the youth grasps plaits of his own hair; the base plaque has winged horses above a palmette. I believe that this is the handle of a *Schnabelkanne*; Riis, however, calls it an amphora handle. Since no reproduction of the following item is available it is impossible to say whether they form a pair, as for an amphora. Structurally they would be impossible to attach to such amphoras as nos. 39, 43. They could be attached to one like no. 38 but they have the taut pose and stiff knees of the *Schnabelkanne* handles.

36. Berlin, Staatliche Museen FR. 602. Handle, attached to oinochae, not belonging. Neugebauer, *Führer* 100 and *AA* (1923-24) 317f, note 1 on 318; Riis, *loc.cit.* Reclining men and winged horses as on the preceding.

37. Naples, National Museum. *Schnabelkanne*. Gargiulo, *National Museum of Naples* 2 (1873) pl. 45, 1. The illustration is poor and I am unable to learn much about the object. The youth grasps the tails of lions that look like mice. There is no plaque below his feet. The vase is squat and unusual but it has shoulder decoration like a certain *Schnabelkanne* fragment, Jacobsthal and Langsdorff, *op.cit.* pl. 17, no. 117.

Of the above items, nos. 28-33 are consistent in their means of attachment and the vase form can have varied little. No. 33 has been recognized as a *Schnabelkanne* of exceptional form. They have motives which distinguish them from the hydriai and oinochoai and connect them with the amphoras which follow. That nos. 28-36 are Etruscan is shown not only by the vase form but by the style.

The following is a solitary example of one type of amphora.

38. Edinburgh, Royal Scottish Museum 251. Amphora with two handles. *StEtr* 11 (1937) 399, pl. LII; Micali, *Monumenti Inediti* 102, pl. XVI, 11. These two publications illustrate the same vase, though assigning it to Volterra and Gorgona, respectively. Micali's assignation to the Vatican should refer to no. 40. Difference of height (0.37 and 0.30 m.) is due to change of covers. The youths with rams and the lions are as elsewhere but the feet rest on a sloping surface between the rams and the lions recline on thick platforms instead of directly on the rim. The vase resembles pottery

⁸ A third pair of the handle bases is in the Louvre. See *Jdl* 58 (1943) 240, fig. 28; De Ridder, *Bronzes du Louvre* 2, 118, nos. 2788, 2789, pl. 100 and the references to nos. 40, 41. A single

"neck" amphoras but is distinguished by the sharp ridge immediately below the lip. The shape of the neck demands that the handle be attached above the rim, where the lions interfere with the cover.

The following are almost all in pairs and belong to amphoras, not of the same form as no. 38. The crowning member, composed of the usual felines, is cut down to relief proportions and tipped to fit below the curved under side of the lip.

39. London, British Museum 557. Amphora. From Vulci. Walters, *Catalogue of Bronzes—B.M.* 79; *Select Bronzes* pl. XI; Riis, *Tyrrhenika* 84, pl. 17, 3; *Catalogue—Pourtales* (1865) no. 718; *Jdl* 7 (1892) 137, note 23; Neugebauer, *Jdl* 58 (1943) 243, note 1. *Bdl* 7 (1835) 204; Dennis, *Cities and Cemeteries of Etruria* 1, 455; Giglioli, *L'Arte Etrusca* pl. CCXXV, 4. Lions' tails grasped by youth. Lower plaque motive: sphinx in front view. The rim of the vase is restored (see Walters, *Catalogue*).

40. Rome, Vatican, Museo Etrusco Gregoriano. Pair of handles, attached to a krater. Neugebauer, *Jdl* 58 (1943) 241, fig. 29 and *AA* (1923-24) 316; Nogara, *Gli Etruschi e la loro Civiltà* 11, fig. 59 and *Les Etrusques* pl. IX, b op. p. 80; *StEtr* 10 (1936) 33, pl. VII, 5; Riis, *Tyrrhenika* 84; Museo Gregoriano 1, pl. LVI, 3; Martha, *L'Art Etrusque* 521, fig. 348. On lower plaque, Herakles and female contestant; between, in one case, a stag, in the other, head of boar.

41. Formerly Venice, Fejerway Collection. Pair of handles. From Eperies. *MonInst* 5, pl. 52, 1 left and right; *Adl* 25 (1853) 126f; Neugebauer, *AA* (1923-24) 316f and *Jdl* 58 (1943) 238. Apparently exactly like no. 40.

42. Formerly Cook Collection. Pair of handles. Plate 53, fig. 17. Burlington Fine Arts Exhibition, *Catalogue, Ancient Greek Art* (1904) 60, Nos. 92, 93, pl. LXV; Reinach, *Rép. de la Stat.*, 4, 49, 2 and 4; Smith and Hutton, *Catalogue of Antiquities—Wyndham Francis Cook* 2 (1908) pls. XL, XLI; *BSA* 28 (1926-27) 83, note 2. The youth holds tails of lions, with palmettes fitting between his shoulders and these animals. There are no lower plaques; possibly the decorated parts were cut away because damaged.⁸

43. Mora, Zorn Collection. Handle of amphora. Andren, *OpusArch* 5, 31f, no. 66, pl. XVII. The back of the head is deeply notched for fitting to the vase

base plaque is in the British Museum: Neugebauer, *AA* (1923-24) 318; Walters, *Catalogue—Bronzes—B.M.* 65, no. 467; *AZ* (1846) 220.

mouth. The plaque below the handle has a Silen's face.

Only once have such handles supposedly been found attached to a vase, and that is the Poutalès amphora, the rim of which is restored, according to Walters' *Catalogue*. It is not certain that the other handles belong to vases exactly like it. Metal amphoras of the period are few and varied so that it is not possible to recognize a standard shape. The handles would suit any amphora with a strongly concave neck, fitting either against its rim, as on the Poutalès, or against a protruding ring such as occurs on an amphora in Hamburg, a vase which approximates the type of black-figured vase called simply "amphora" in distinction to "neck amphora."¹⁰ To one judging from the style alone, all the handles seem Etruscan.

Finally let me mention a fragmentary detached handle of which the preservation is so bad and the reproduction so unsatisfactory that I can conclude nothing about the original function and form of the vase.

44. Rome, Vatican, Museo Etrusco Gregoriano. *Museo Gregoriano* 1, pl. LXVI, b. Human figure, elongated, toes pointing down. The vase rim seems to be attached to the upper arms and shoulders.

This concludes the list of vases and handles. In so far as there exists an ordered arrangement of the Greek handles it is due to Polites. He classed as from a single Laconian workshop and the earliest of all figure handles he knew, the Oxford handle (no. 2) and Louvre 2785 (no. 12). Also Laconian but slightly younger, dating about 530, he placed the Boston handle (no. 10). With some hesitancy he assigned the Berlin hydria (no. 8, fig. 2) to South Italy and dated it about 520, a date more plausible in my opinion than Neugebauer's 500. Polites attributed the other Boston handle (no. 9) to an Ionic workshop. He mentioned the then recently reconstructed handle in Athens (no. 4) and called it Laconian, from the same workshop as nos. 2 and 12. Finally, he made a good case for

¹⁰ Of amphoras of approximately this period I know only the following: group of three assembled by Neugebauer, *RM* 38-39 (1923-24) 365ff, nos. 17-19; two alike, both from Trebenische, Filow, *op.cit.* 57ff, no. 71, figs. 59-61, and *JOAI* 27 (1932) 27f, figs. 39-40; totally different, from Paestum, *ILN* 225 (Oct. 23, 1954) 602; Louvre no. 2638, De Ridder, *Bronzes du Louvre* 2, pl. 96; Louvre no. 2632, De Ridder, pl. 95, with wrongly attached hydria or oinochoe handles; Hamburg, Jacobsthal and Langsdorff, *op.cit.* pl. 31, and Von Mercklin, *Gr. u. Röm. Altertümer*, pl. XL.

calling no. 13 Corinthian and accepted the Trebenische handle (no. 15; date: middle sixth century) as Corinthian in agreement with Filow and Payne, the latter most reservedly.¹¹

On the whole, this system of Polites' still stands but I must make one correction. I cannot accept no. 4 as Laconian, much less from the same shop as nos. 2 and 12; Young's attribution to Athens is much more plausible. The handle shows about as much Ionic influence as the kneeling boy vase which Vanderpool attributed to Athens and resembles it rather strikingly.¹² I feel inclined to date it earlier than 520 B.C., in fact, within the decade 540-530, not much later than the kneeling boy.

Once this adjustment is made, Polites' system proves satisfactory. Most current theories and attributions are compatible with his views. Gjødesen discussing our no. 5 which he called a patera handle, grouped it with our no. 10 as Laconian and dated it about 550; Neugebauer had said first half of the century. A recent publication of a Corinthian pyxis head in pottery, Louvre E602, by Benson, who dates it in the 50's of the century, corroborates this dating,¹³ for the pottery head bears a decided resemblance to no. 5, but I would not argue from it a Corinthian origin of the handle. Quite recently Verdeles has published no. 1, which he considers Corinthian of the period 540-530, a supposition conflicting with neither the other attributions to Corinth nor with the supposed Laconian manufacture of certain other pieces. Further, I have observed that two handles for which a date has not appeared in print, nos. 3 and 19, are labelled respectively "vers 550" and "1 moitié du VI s." by the Louvre authorities (while no. 12 is dated 530, somewhat later than Polites). Miss Lamb, recognizing the importance of no. 11, dated it at mid sixth century.

The time is not yet ripe to judge the study by Vallet and Villard (*BCH* 1955) where they group nos. 8 (fig. 2), 9 and 19 with the krater from Vix and some other bronze works of the last quarter of the sixth century.¹⁴ They name no. 1 as the pre-

¹¹ I am ignoring Neugebauer's attribution of no. 13 to South Italy (*RM* 38-39 [1923-24] 343) because of his retraction of his mass South Italic attributions and his general agreement with Payne in his last article: *Jdl* 58 (1943) 235, n. 3.

¹² Vanderpool, *Hesperia* 6 (1937) 426-441; Picard, *GBA* s. VI, 19 (1938, pt. 1) 213f, fig. 1; Verdeles, *ArchEph* (1953-54 pt. 1) 194, fig. 5.

¹³ *AJA* 60 (1956) 229, pl. 77, fig. 44. See note 19.

¹⁴ For the bibliography on the Vix vase see Vallet and Villard, *op.cit.* The date of the Vix krater is not significant for the dating

cursor of the "Vix" group and no. 13 as the successor and connect them all with "Chalcidian" pottery, promising a further study of the origins. I think that until the smoke has cleared from above the Vix discovery, about which the literature is as voluminous as it is indecisive, it would be folly to use it to identify supposedly related works. In my opinion, the Vix vase has yet to be proven anything but mainland Greek.

So Polites' conclusions about Greek handles still stand, in the main. There is a compact group of hydria and oinochoe handles, beginning before the middle of the sixth century; many workshops produced them, the Spartan being prolific but the Corinthian area contributing a share also.¹⁴ I do not intend to offer much new stylistic criticism but I must make some suggestions about those handles which I illustrate for the first time and those which have not before been considered in this connection.

As was stated above, the similarity of the fragmentary handle from the Sparta excavations (no. 11) to the Boston handle supposedly from Sparta (no. 10) seems obvious and it strengthens the case for Laconian manufacture of a whole group. The beautiful fragment from the North Slope of the Athenian Acropolis (no. 21, pl. 50, fig. 9), consisting of no more than human feet, rams and Gorgoneion, bears little resemblance to any figure handle previously known. The lapping of the upper thick wool over the shorter wool of the rams' bellies is not unlike the Randazzo hydria (no. 8, pl. 51, fig. 2) and the rendering of all the wool, including the patch over the forehead, by little strokes arranged in rows instead of thick tufts in relief, is like the rams of the Randazzo handle (no. 8) and like the ram in the pastoral group in the Stathatos

Collection (published by Kunze with a suggestion of Sicyonian origin).¹⁵ The Gorgoneion finds its counterpart in two sets of Gorgons that adorn a krater from Trebenishte, now in Belgrade, a pair being on its handles, a trio on its stand. The riders on the neck of this same krater also have curiously square faces.¹⁶ The quality of the decoration recalls the Vix vase but quality is hardly an indication of origin. The Acropolis fragment is just another mainland Greek creation of the decade 540-530 B.C.

The Baltimore handle which caused this research (no. 20, pl. 51, figs. 6-8) is not easy to place but it belongs in the same orbit. The fact that the lions have no ruffs and appear to be lionesses, the Gorgoneion in the place of the commoner palmette, and the long supports under the rams, all distinguish it from most handles but fail to imply any special date or bailiwick. The solution above the Gorgon, where the curled ends of the volutes had to be separated from the ribbon-like hair of the creature, was to extend the tails of the rams in a rather uncertain and indefinite manner. The Gorgon face is squarish but not as decidedly so as on the Acropolis handle. The tainia is beaded across the forehead, plain at the back where the ends cross low down (fig. 8), a system not without parallel in early times.¹⁷ In the modelling of the body this youth resembles the Trebenishte handle (no. 15). And if one wanted to compare monumental sculpture, it would be the Melos kouros and its group and others assigned to early periods by Richter—and to no later groups.¹⁸ As for the face, flat, big-eyed and pointed of chin (fig. 7), I see some resemblance to terracottas of Jenkins' Argive group, especially his ornate (F) sub-class which begins about 550,¹⁹ though other groups

of the hydria handles. Those which Vallet and Villard assign to the Vix group are among the latest of the Greek anthropomorphic handles and must date 525 B.C. and later. In my opinion, the krater is earlier than 525 and earlier than most other finds from the Vix grave.

¹⁴ I think it important to stress the many anthropomorphic hydria handles that can be traced to mainland Greek sites, in contrast to their total absence from Paestum. It is too early to draw conclusions from such provenience. I note, however, the statement by Van Buren, relative to the Paestum find, that hydriai with female heads as handle ornaments occur but once in Greece, frequently in South Italy: *AIA* 59 (1955) 305f. The fact is demonstrable but the statement is conducive to misinterpretation; a generality should take account of the Greek provenience of the larger class of hydriai studied by Polites and the handles presented here.

¹⁵ E. Kunze, *Drei Bronzen der Sammlung Helene Stathatos* (109. Winckelmannsprogramm) (1953) 5ff, pls. 1-3; *BCH* 74

(1950) pl. xxxvii, 1; Amandry, *Collection Hélène Stathatos* (1953) pl. II.

¹⁶ *JOA* 27 (1932) 19ff, and 106ff, pls. 1-2; *AA* (1930) 287ff; Richter, *Archaic Greek Art*, fig. 248 (riders only).

¹⁷ Compare a bronze *kyros* from Sparta, *BSA* 27 (1926-27), pl. xi, no. 13; kouros from Orchomenos, Richter, *Kouroi* pl. xxix, fig. 104; bronze mirror stand, *JOAI* 18 (1915) 59, fig. 30.

¹⁸ Richter, *Kouroi* 159f, no. 72, pls. LX-LXII; for the chronology, 153ff.

¹⁹ *BSA* 32 (1931-32) 39f, pl. 15 (Argive); *Perachora* 216, no. 89, pl. 96 (Corinthian, about 550 B.C.). The curious bowed front of so many ornate figurines occurs in bronze on the Perachora sphinx (*ibid.* pl. 43, 1-2). Handle 20 is more like the sphinxes collected by Jantzen, *Jdl*, Ergänzungsheft XIV, pl. 33. Compare a Corinthian mold and head, A. N. Stillwell, *Corinth* XV, pt. I, 91f, no. 9, pl. 30 and XV, pt. II, 152, no. 4, pl. 32 (second quarter of the century). Comparison with pyxis heads is not very rewarding because the late Corinthian pyxis

which Jenkins considers Corinthian show some resemblance, indicating that terracottas cannot solve the problem. A north Peloponnesian origin for handle 20 seems altogether probable.

The same area probably is responsible for the small oinochoe with handle which is in the British Museum (no. 16, pl. 50, fig. 4) and the handle in Carthage (no. 18). This exhausts the list of those I am satisfied to call Greek; I do not agree that the Malaga handle (no. 23) makes a Greek impression, as was stated in the *Archäologischer Anzeiger*, and prefer to leave that handle and some others unattributed. Without indulging in surmises one can say that most non-Italic anthropomorphous handles stem from the Doric part of Greece, as compared to a few doubtfully identified as South Italic and a mere two (nos. 4 and 13) which may be Ionic or made under Ionic influence.

Of the remainder, many are Etruscan, mostly specifically Vulcian. Scholars who have studied the Vulcian problem have considered much more than the style of the nude figure; ornament and the forms of various utensils are evidence for a single huge workshop in this central Etruscan city.²⁰ The handles most easy to identify as belonging to this Vulcian product are the *Schnabelkannen*. Jacobsthal and Langsdorff, recognizing only four with anthropomorphous handles, our 28, 29, 32 and 33, assigned the last, that from Schwarzenbach, to Vulci, the other three to a workshop which produced the majority of all *Schnabelkannen* and which worked in close association with Vulci. Apparently they include the figure handles in their overall dating of *Schnabelkannen* to the first generation of the fifth century B.C.²¹ Neugebauer proceeded from simple Vulcian vessels to the crucial no. 33, which he claimed for Vulci and included in its wake the amphora handles with similar lower plaques, *viz.* nos. 40 and 41 and the *Schnabelkanne* handles, 35 and 36. The last he dated about 500 (in his *Führer*; I take Riis' date to be later). He did not consider the Pourtalès amphora (no. 39) Vulcian. Riis made no. 39 definitely Vulcian, with a Greek prototype and showing Attic and perhaps

group is inferior in quality to the earlier. In the series of three late Corinthian pyxis heads arranged by Richter, *Archaic Greek Art* 81, figs. 134-139, our no. 20 belongs between the second and third (after the middle of the century).

²⁰ Full bibliography by Neugebauer, *Jdl* 58 (1943) 206f. Fundamental for the establishment of the Vulci school, even

South Italic influence of 480-460 B.C. By his system, no. 40 is also Vulcian, though decidedly earlier, while nos. 35 and 36 (he thinks them amphora handles) are Vulcian, dating between nos. 39 and 40.

So there is some disagreement in specific cases, but a Vulcian factory producing anthropomorphous handles has definitely been recognized. In attempting to identify a few more Etruscan handles I must ignore the two remaining *Schnabelkannen* (nos. 30 and 31) because the reproductions are inadequate. The rather plump figures of no. 42 (pl. 53, fig. 17), a pair of amphora handles, I think are Vulcian, made late in the group's history, at least as late as the Pourtalès amphora. Going back to the trefoil-mouthed oinochoai, two of which Walters called Etruscan in his *Catalogue*, I would select no. 25 (pl. 53, fig. 14) as Vulcian, but of an early period, perhaps about 500 B.C., while no. 24 (pl. 53, fig. 15) seems to me as clearly not to belong to the Vulcian establishment and to be not yet possible of assignation. Finally, Ducati called no. 17 Etruscan and dated it on the basis of the engraving on the vase at the end of the sixth century, factory unspecified (Schumacher had called it South Italic).

One of the handsomest of all the handles, no. 22 (pl. 52, figs. 10-11), is one of the most enigmatic. Having been acquired by Thorvaldsen in Italy, it might well be Etruscan and I see a decided resemblance to certain Vulcian creations, not to the handles under discussion but to some thymateria of earlier date.²² However, the youth's hair mass has everything in common with Greek works of art, nothing with Etruscan, and the lions, rams and lower palmette seem to be Greek. I feel unable to come to a decision about it and must leave it to the judgment of others, together with several others which I have omitted discussing.

Even without a perfect record of identifications, it is possible to reconstruct in broad outline the history of anthropomorphous handles in archaic and classical times. They appeared on hydriai and oinochoai with trefoil mouth in Greece, especially in the Peloponnes, before 550 B.C. and continued

though none of the later handles is mentioned, is the work of Guarducci, *StEtr* 10 (1936) 15ff.

²¹ Jacobsthal and Langsdorff, *op.cit.* 61f.

²² Riis, *Tyrrhenika*, 79ff; Neugebauer, *Jdl* 58 (1943) 262ff. Especially the Vatican figure, Neugebauer's figs. 45 and 46, and Beazley and Magi, *op.cit.* pls. 47-49.

in vogue there for a generation, going out of fashion before the end of the century. Some hydriai may have been made in South Italy in imitation of the Greek but this is not proven. The type spread, but fairly late, to Etruria, where oinochoai were made again and where the handle was adopted for the distinctively Etruscan jug, the

Schnabelkanne, and also for amphoras. In Etruria, the main center for their production was Vulci, and the production continued until after 460 B.C., so that the total history of these handles spanned a century.²⁸

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It does not belong in any of the categories that have been established above and probably it antedates the standardized forms of both hydria and oinochoe.

²⁸ Since I wrote the above, another handle has been published: *AA* (1955) 215ff, fig. 16. It was excavated near Larisa in north Thessaly and tentatively identified as a hydria handle.



New Light on Thermopylai

W. KENDRICK PRITCHETT

PLATES 54-55

The battle of Thermopylai of 480 B.C. is such a well-worn subject that no fresh approach seems possible. But in addition to the excavations of Marinatos, there have been three important modern studies which have shed light on Herodotus' narrative: all of them take up slightly different aspects of the problem, and no one of them takes essential cognizance of any other. These are as follows:

1. J. Labarbe on the date of the battle of Thermopylai, which was concluded on August 3 or 4 in 480 B.C., one of the few Julian dates which we would be willing to accept for an ancient event (*BCH* 78 [1954] 1-21).

2. A. R. Burn on Ephialtes' route south of the peak of Mt. Kallidromos¹ (*Studies Presented to D. M. Robinson* I [St. Louis 1951] 480-489).

3. Y. Béquignon, *La Vallée du Spercheios* (Paris 1937), particularly on the identification of the site of ancient Trachis and of its territory.

Each of these three studies has yielded important information which, added to my own explorations on the spot,² has led me to a restudy of the battle of 480 B.C.

In particular, the two aspects of the problem which I wish to consider in the present study are the route of Ephialtes, and the date of the Phocian wall.

The ideas currently held about the route of Ephialtes are those of Grundy and Munro. These scholars postulate that Ephialtes, after hours of marching over very difficult terrain, either around the peak crowned by the town of Delphinion or through the Asopos gorge, reached a point which was in plain sight of the position from which he started. Grundy and Munro take Ephialtes to the spot now occupied by the monastery of the Panagia,

a point which would easily have been reached direct from the Persian camp by an hour or so of walking. This is patently absurd.

As a result of repeated visits to the region, I have become convinced that Ephialtes' route may be recovered with reasonable certainty. The topography so accords with the descriptions of Herodotus that at each step the choice seems almost inevitable.

Before discussing the path of Ephialtes, we must obtain some idea of the number of men who advanced by this route under the command of Hydarnes. The topographical requirements for the passage of a highly trained Alpine squad and a large army are as different as those for a goat path and a carriage road. The *Guide Bleu*, apparently reflecting the opinion of Béquignon, says that the number was 2,000 men. Leake³ and Macan⁴ say the figure was 10,000. Harmening writes: "Eine Kolonne von nur 5000 Mann—und es sollen ja sogar 10000 gewesen sein—musste bei Überwindung einer solchen Stelle eine Länge von mindestens 5 Kilometern bekommen."⁵ Diodorus gives the number as 20,000.⁶ Herodotus (7.83) makes Hydarnes the general of the 10,000 Immortals, and later states (7.215) that Hydarnes was accompanied by those he commanded. I see no reason to question Herodotus' figure of 10,000. In any case, according to all estimates, we must look not for a mountain path or "track so narrow that you are obliged to walk in single file"⁷ on which the last man would be many kilometers behind the leader, but rather for a broad track.⁸

There is at least one other general factor to consider: moonlight.⁹ The facts are now clear from the

¹ 11.8.5.

² These are Grundy's words (*Great Persian War* [London 1901] 302) about one section of his route.

³ In 279 B.C., when the Gauls crossed Mt. Kallidromos by the same path which Hydarnes had followed, Brennus was at the head of 40,000 men, if Pausanias (10.22) was rightly informed.

⁴ One would like to know more about the conditions of the weather. Although Herodotus tells us that daybreak of the last day of engagement at Thermopylai was clear (7.218: *ηραλη*), other meteorological comments are given in connection with the sea fight at Artemision. To relate these comments to Thermopylai involves the synchronization of the fighting on land and sea.

¹ We follow modern students of Thermopylai in applying the name Kallidromos to the mountain which on the Greek General Staff map of 1943 is also called Saromata. In antiquity Kallidromos was first the name of one peak (Livy 36.16): Herodotus called the entire mountain Anopai.

² These explorations were made possible by a generous grant from the John Simon Guggenheim Memorial Foundation. My trips were made both more pleasant and more profitable by the companionship on different occasions of Professor E. Vanderpool and Mr. William P. Kaldas.

³ *Travels in Northern Greece* II 54.

⁴ *ad* Herodotus 7.218.

⁵ *Antike Schlachtfelder* IV (Berlin 1924-1931) 52.

researches of Labarbe, on the basis of a fragment of Polyainos referring to the movement of the star Sirius.¹⁰ Ephialtes' march, which took place on the night before the third day of combat, fell on August 2 of our modern Julian calendar. Since the night of the preceding full moon was July 21, the march was twelve nights after the full moon. Clearly, the moon was of little assistance to the Persians, and we are to reject a track "which needed all the light of the full moon," to use Munro's phrase descriptive of his route.¹¹

In discussing Ephialtes' route I propose to consider it in four sections: the beginning, the ascent, the Phocian position, and the end. The various identifications suggested by scholars will be treated under these four sections.

A. Beginning of the route of Ephialtes. The various suggestions are as follows:

1. Vardates, west of the Trachinian Cliffs: Munro and Myres. Both scholars begin the route at the entrance to the valley of the Melas (Mavroneri) river, west of the citadel of Delphinion atop the peak Livari (701 m.: Greek General Staff map of 1943, 1:100,000, Sheet Lamia). The determining factor in their view is Herodotus' statement that Ephialtes had the mountains of the Oitaians on the right and those of the Trachinians on the left.¹² The distance from Vardates, near the mouth of the Melas valley, to Nevropolis on Mt. Kallidromos, is not less than twelve miles.¹³

2. Asopos Gorge: Leake, Grundy. As Burn noted, Grundy has been followed by almost all other later writers.¹⁴ Both Leake and Grundy begin Hydarnes' march at the northeastern outlet of the gorge of the Asopos river. The one Herodotean sentence, which both authorities cite, is as follows (7.216):¹⁵ ἄρχεται μὲν ἀπὸ τοῦ Ασωποῦ ποταμοῦ τοῦ διὰ τῆς διασφάγος ρέοντος. Grundy translates: "It begins

The great storm of 7.188-191, blowing from the Hellespont, had only shortly preceded the night of Ephialtes' march. According to the most recent, and in the present writer's opinion the most satisfactory, reconstruction of parallel events at Thermopylae and Artemision, that of Labarbe in *BCH* 78 (1954) 1-21, the last day of the storm coincided with the day preceding the beginning of Ephialtes' march. Labarbe (12, n. 2) suggests that the fallen oak leaves of 7.218 had resulted from the defoliation of the trees by the unseasonable July storm.

¹⁰ *op.cit.* 20.

¹¹ *Cambridge Ancient History* IV (New York 1926) 294.

¹² Munro, *JHS* 22 (1902) 313-314; *CAH* IV 293-294; Myres, *Herodotus* (Oxford 1953) 248. For maps, the reader is referred to *Antike Schlachtfelder* II, Karte 5; *Schlachten-atlas*, no. 5;

from that part of the Asopos river which flows through the defile."¹⁶ He states that this is "the true translation of the expression in Herodotus."

Grundy reports that it took "an hour and a quarter to pass through the ravine at a fairly fast walk."¹⁷ The present writer went up the gorge twice. The first time, in the month of April, I failed to complete the ascent because of the high elevation of the water. On the second occasion, in the month of July, I went through the gorge in about the same time as taken by Grundy. Plate 54, figures 1 and 2, was photographed within the ravine. Where the gorge was narrowest, the water was now never more than knee-deep. I observed that the gorge is filled with boulders, many of considerable size, all worn smooth. In this respect, a person who inspects only the eastern entrance would be greatly misled. There were many times when I could not be sure of my footing, but had to proceed cautiously. A "fairly fast" pace is hardly possible. In some places it would be necessary to walk single file. See, for example, fig. 2. Since I saw no human footprints in the sandy places within the ravine, I inquired of a goatherd what people used the gorge, and was told that very few passed through and those usually on animals. I asked him whether a large body of men could have traversed the gorge on a moonless night and he gave what I think is the inevitable answer, that it was very unlikely. All in all, it is quite impossible to regard the gorge as a main passageway.

I must make one other observation about the gorge as a result of walking above along the left bank on a path which proceeds at a level higher than the railroad. If Trachis is correctly located by Béquignon atop this flat-topped mountain, the Greek occupants of the town could have seriously impeded any passage through the gorge.¹⁸ There

CAH IV, facing p. 293; Burn, *op.cit.* 484; as well as the Greek General Staff map of 1943.

¹⁴ So Burn, *op.cit.* 487. ¹⁵ *ibid.* 482.

¹⁶ Leake, *Travels in Northern Greece* II 53; Grundy, *Great Persian War* 299.

¹⁷ Similarly, How and Wells, in their commentary on this sentence, state: "It is generally assumed that Hydarnes began by ascending the Asopus ravine, and these words, though they should not be pressed (as by Grundy, p. 299), favor that assumption."

¹⁸ *op.cit.* 301.

¹⁹ Herodotus notes that Trachis was not in Persian hands (7.201: *μεχρι Τραχίδος*) and was possibly garrisoned in part by the Locrians (7.203).

are several places along the path where one can peer down into the middle of the ravine. Stones could easily be rolled on any army passing through.

3. Damasta Spur: Burn. He describes it as "the spur or projection of the hills from the monastery of Damasta to the Alamanna Bridge."¹⁹ He continues: "[It] affords easy access; even the crags at its top, though not unimpressive, can be passed, left, right, or centre, without climbing." Due south of the Alamanna Bridge, on the old Lamia-Atalante road, the mountain sends out a spur at the base of which is the eastern half of the modern village of Damasta, or Koutseki, as the town is labelled on the Greek General Staff map of 1943, Sheet Lamia.²⁰

Clearly, the area we are to investigate for the start of Ephialtes' path depends on the interpretation of the 7.216-217 passage from Herodotus. Now he most explicitly says that the path starts from the Asopos and that the Persians crossed the river at the beginning of the march. The critical words occur in ch. 217: *τὸν Ἀσωπὸν διαβάντες ἐπορεύοντο πάσαν τὴν νίκτα*. As Burn has aptly stated the case, "What Herodotus says, is that the Persians' night march started by crossing the Asopos 'the river that flows through the gorge.'" Burn seems unquestionably correct in insisting on this interpretation of Herodotus.

However, we are unable to follow Burn when he states, "The only way by which a route from Malis to Nevropolis would be likely to start by crossing the Asopos is, surely, by way of the Damasta spur." It is the area just west of the spur, where the base of the mountain retreats southward before the advance of the plain, which affords the most likely route of ascent. Further westward and extending to the gorge the hillside is steep and rocky. This route of ascent may be called the Chalkomata after the name of the spring by which it passes.

4. Chalkomata: Gordon.²¹ Any personal inspection

of Mt. Kallidromos will confirm, I believe, that this route constitutes the easiest ascent of the mountain from the Lamian plain. It starts in the plain about one kilometer east of the Asopos Gorge at the western edge of the modern village of Damasta, and ascends to the west of a hill, distinguished by the purplish hue of its rocks, which carries a fort, past the Chalkomata spring and a large tree which, because of the absence of other trees in this area,²² is today a conspicuous landmark. It then passes almost due south to cultivated ridges above the spring and finally to the modern village of Eleutherochori.²³ Plate 54, fig. 3, taken from the Malian plain and looking south (or SSE), shows the fort hill in the center of the picture with the spring Chalkomata marked by the large tree somewhat above and to the right. The time required to walk from Chalkomata to Eleutherochori is approximately one hour and a half. The entire path is marked on the Greek General Staff map of 1943, sheet Lamia. The present writer has traversed this route and believes that it is a much easier way than any approach along the Damasta spur, for the latter at some stage requires the crossing of a rather deep ravine, a western tributary of the so-called "Great Ravine." This route is still used today by natives who go on foot or horseback. Furthermore, we have five pieces of evidence which would lead us to infer that this route was used before the days of the carriage and automobile:

1. The approach to the path is overlooked by a hill on the top of which are today the remains of an ancient fort, presumably of the fourth century B.C. At least two courses of masonry remain. This hill is immediately below (due north of) the easternmost curve of the modern highway, where the photograph, reproduced as pl. 54, fig. 4, was taken. From its location, the fort was obviously built to guard the path.²⁴

2. As one ascends the path, one reaches the Chalkomata spring, where there is today a plaque com-

ported that the area south of Eleutherochori was heavily wooded until it was denuded in the nineteenth century for railroad ties. Cf. Béquignon, *op.cit.* 40. Natives state that the peak Sastani was wooded until 1944 when it was burned. We should add that Livy (36.15) is most emphatic in his statement that the only practicable military route by Oita was that through Thermopylai.

25 Many maps (including Kromayer's) mark an "Eleutherochori" and a "Palaio-Eleutherochori." Today there is only one village and that at the location usually marked "Palaio-Eleutherochori"; in other words, one kilometer east of the modern Lamia-Athens highway.

26 This fort is presumably the one described in *BCH* 21 (1897) 151-152.

¹⁹ Burn, *op.cit.* 480.

²⁰ Older maps (including Kromayer's) mark a "New Damasta" and an "Old Damasta" on the spur of Mt. Kallidromos. Today both have moved down the mountain, so to speak, and the name is applied to the sprawling village at the base of the spur.

²¹ *Account of Two Visits to the Anopaea* (Athens 1838).

²² It seems reasonable to assume that Mt. Kallidromos in the period with which we are concerned was heavily wooded (Herodotus 7.218). In exploring Ephialtes' route, then, we are seeking a way through a forest. Gordon (*op.cit.* 4) in 1836 and 1837 found heavy forestation, particularly in the upper part of the mountain. Philippson (*Zeitschrift* 30 [1895] 159) has re-

memorating two brothers, citizens of Desphine, who fell on April 23, 1821, in the War of Independence. The fact that the fighting took place on this path suggests that it was the main route over the mountain.

3. General Gordon explicitly states, in describing his itinerary of September 3, 1835, that the Chalkomata fountain marked a "separation of roads to Salona and Livadchia."

4. On the most accurate map known to me which shows early nineteenth century roads, that made for King Otho by French surveyors under Aldenborn (Athens 1838), a road is marked proceeding southwards up the slopes of Mt. Saromata from the Alamanna Bridge. This road runs west of the Damasta Spur and the town of Damasta. It is clearly identical with our route.

5. As we climbed from Chalkomata to Eleutherochori, we noted stretches near the path which suggested cobbling. Finally, as we neared the upper fort mentioned below (n. 64), in a position 100-200 yards below the modern orphanage for the children of Lamia, we found an unmistakable stretch of a well-cobbled road, presumably Turkish. The position was lower than the modern Eleutherochori-Panagia path, and the road could only have led southwards.

We seem, then, to have evidence that the modern path used by natives on foot, which from our personal exploration we regard as the easiest means of ascent, was in fact the path used in earlier periods.

To recapitulate our position about the beginning of Ephialtes' route: if we are to follow, as we must, Herodotus' statement that the Persian night march started by crossing the Asopos, we must eliminate all routes except the Damasta spur and the Chalkomata. Between the two, we would choose the Chalkomata because it is the easier; and what evidence we have points to its use as an ancient way.

B. Ascent of the Mountain. There are three pieces of literary evidence which must be considered in determining Ephialtes' route up to the summit of the mountain. They are:

1. Herodotus' statement (7.216) that the path ex-

²⁵ *op.cit.* 243-263. The innumerable sherds, the foundations of various structures, the rock-cut tombs, the magnificent walls especially on the height above but also below near the left bank of the Asopos river, remain for all to see. There is certainly no reason to question Béquignon's location of the town itself.

²⁶ Herodotus 7.176 and 203; 8.21.

²⁷ A summary of the ancient evidence relating to Ainis may

tend along the backbone of the mountain (*κατὰ πάχιν τοῦ ὄπεος*).

2. His statement (7.217) that during the night march the Persians had the mountains of the Oitaian on the right and those of the Trachinians on their left.

3. Pausanias' statement (10.22) that there are two paths over Mt. Oita, the one of Hydarnes leading through the territory of the Ainianians.

Assuming that both Herodotus and Pausanias are correct, we should be able to recover Ephialtes' route if we establish the territorial limits of Trachis and of Ainis.

Of the site of Trachis and of its territorial limits, the most detailed study is that of Béquignon (1937).²⁵ Only his conclusions can be repeated here. He locates Trachis, which was supplanted in 426 B.C. by Heracleia, above the Trachinian cliffs on top of that part of Mt. Oita which lies just west of the Asopos Gorge. The territory of Trachis (22,000 plethra: Herodotus 7.199) extended from Kato-Duovouna in the west eastwards across both banks of the Asopos past Thermopylai, for Leonidas' position was in Trachis.²⁶ Important for our study is the southern border of Trachis, which ran along the ridge of Mt. Kallidromos.

The exact limits of the territory of Ainis are probably beyond recovery.²⁷ It always included the upper part of the Spercheios valley, and its chief city seems to have been Hypata. But Harmening believes that Ainis extended as far south as Nevropolis and Eleutherochori.²⁸ Kirsten bounds Ainis on the east by a line running through Tsopalades and Beki and just west of Phrantzi and Sosthenis in the Malian plain.²⁹ His southern boundary does not seem to be clearly defined. Stählin would extend the boundary as far south as Duovouna and the lower valley of the Dyras river, but would not include that peak of Mt. Oita known as Katavothra.³⁰

Harmening cites no ancient evidence for his southern boundary line. It is offered merely to suit the requirements of the Pausanias 10.22 passage in the light of his theory of Ephialtes' route. Admittedly, as Stählin has indicated, the sites of several towns which belonged in the territory are un-

be found in Stählin, *Das hellenische Thessalien* (Stuttgart 1924) 219-225.

²⁸ *Antike Schlachtfelder* IV 50.

²⁹ See Kirsten's plan in back of Philippson, *Die griechischen Landschaften*, Band I, Teil I (Frankfurt 1950) and pp. 243, 264 n. 2.

³⁰ *op.cit.* 219-226. Cf. *RE* s.v. Thessalia 110-111.

known.³¹ Nevertheless, evidence is lacking for extending the southeastern boundary of Ainis further than Kato-Duovouna for any period, or the southern line south of Mt. Katavothra. In the time of Pausanias, the boundary was further westward.³²

With these approximations of the territorial limits of Trachis and Ainis, based on the conclusions of Béquignon and Stählin, we are now in a position to return to the various modern theories concerning Ephialtes' route up the mountain.

1. Munro and Myres.³³ These writers take Ephialtes' path along the Melas river, behind the high tableland carrying modern Delphinion and ancient Trachis "round to the Asopus under the nameless high-perched fortress (which may be Oeta) near the railroad viaduct below Eleutherochori."³⁴ The Asopos river is crossed somewhere near modern Papadhia, as marked on the Greek General Staff map of 1943, and the ascent to Eleutherochori proceeds upward,³⁵ presumably along the route of a modern path.

As presented by Munro and Myres, there are two particular arguments in favor of this route. First, the Persians would have on their left that part of Mt. Oita on which Trachis town is located, and secondly, the march would pass through the territory of the Ainianians, as they defined it. It should be noted, however, that Myres openly acknowledges that the statement of Herodotus to the effect that the mountains of the Oitaianians were on the right and those of the Trachinians on their left would apply to only a small part of the route. "This ceases to be true as soon as the Asopus is crossed."³⁶ Munro, in turn, would apparently apply the statement of Pausanias about the route leading through the territory of the Ainianes only to that part of the path which goes around the "western end of the Trachinian cliffs."³⁷

2. Leake and Grundy. Grundy, after passing

through the Asopos Gorge, describes his route as follows (p. 301): "A small valley opened out on the left of the ravine, i.e. eastward, and up this a path led. I went up this path, which was a rough one and steep, for several miles, until I reached the new main road, high up on the mountain."³⁸

The present writer has studied Grundy's track with some care. He observed it first by descending westward from the modern highway not far below the turnoff to Eleutherochori. He next examined it from a position on the path which runs above (i.e., on the left bank of) the Asopos. This position was at the southern end of the gorge, and the photograph published as pl. 54, fig. 5 was taken from a spot opposite (west of) Grundy's track at an altitude just above the railroad. Finally, after passing through the gorge, I inspected the path at close range. Grundy's description of this path as an ascent through a valley is incorrect. The "valley" constitutes a slight notch in a steep mountain side. The incline must be at least 25 degrees. The track is so steep and difficult that it is impossible to believe that it could have been used by a force of any considerable numbers.³⁹ A goatherd from Eleutherochori who uses the gorge as a grazing ground for his flocks informed me that the track was used by flocks of sheep and goats. Since it was late afternoon and the goatherd was returning home from the gorge, he volunteered to accompany me to Eleutherochori. In doing so, however, he took the route from the northern exit of the gorge to Chalkomata and upwards. Although we started inside the gorge, he regarded the Chalkomata route as an easier way to Eleutherochori than Grundy's track.

Nowhere in his entire study does Grundy refer to the three literary passages which are critical for determining the route up.⁴⁰ He makes no effort to defend his route in the light of these passages.

3. Gordon and Burn. Eleutherochori-Nevropolis.

circuitous" without further description. Grundy notes (301) that Leake "does not say that he actually traversed it."

³¹ See Stählin, *op.cit.* 221 and 226.

³² Munro (*CAH* IV 295) states that he "owes his information on this western path" to another "who has traversed it."

³³ Munro, *CAH* IV 295. It should be noted that the line of Munro's track, as given in Kromayer-Veith, *Schlachten-atlas*, no. 5, is incorrect.

³⁴ Burn (*op.cit.* 487) states that Munro supports the view that the Anopai reached Nevropolis and he refers to *JHS* 22 (1902) 313-314. But Munro clearly takes his 1902 Anopai near the monastery of the Panagia. This monastery is on the northern side of the mountain, Nevropolis on the southern.

³⁵ Herodotus (Oxford 1953) 248.

³⁶ *JHS* 22 (1902) 313.

³⁷ Leake (II 53) referred to this ascent briefly as "rugged and

³⁸ Burn (*op.cit.* 480), apparently following Grundy (*op.cit.* 261) and How-Wells (*ad* Herodotus 8.31), believes that the Persian army used the gorge after their victory at Thermopylai. He cites Herodotus 8.31-32, a passage which refers to a tongue of Dorian land stretching toward Trachis. But Herodotus says that this strip of Dorian land was 30 stades wide. Clearly the reference is not to the gorge. Kirstein (in Philippson, *op.cit.* I 658), much more reasonably, regards Xerxes' route as going through a strip of land which included Mendenitsa, a sufficiently easy route for an army to traverse.

³⁹ Except in his translation (300) of the entire section of Herodotus.

The advantage of Burn's route is that it was truly along the backbone, or ridge, of the mountain.⁴¹ This ridge of Kallidromos is described by him at some length.

While insisting that the path must start by crossing the Asopos at the beginning, Burn went to some pains to emphasize that he thought the Herodotus 7.217 passage, referring to "the mountains of the Oitaianos on the right and those of the Trachinians on the left," offered some difficulty for any interpretation of an advance up the north slope of Mt. Kallidromos. In a passage which he acknowledges is derived from Myres (by letter) he states: "The Damasta route makes Herodotus describe as 'the mountain of the Trachinians' the part of the range where Trachis town is *not*; while it describes the range on which Trachis *is* as 'the mountains of the Oetaeanos.'"⁴² This argument Burn calls powerful.

As to the Pausanias passage, Burn wrote: "By Strabo's time the Aenianes had ceased to exist as a separate people. Pausanias, 150 years later still, may be pardoned, then, even if his phrase was positively mistaken."⁴³

4. Our hypothesis, as we have stated, is that the approach must be up the northern slope of Mt. Kallidromos. Moreover, in accordance with Herodotus' statement (7.216) that the path extends along the backbone of the mountain, we are compelled to assume that Herodotus meant the path from Eleutherochori to Nevropolis. As we stated at the beginning of this study, the route of Grundy, Munro, Harmening, Kromayer, Myres and indeed of all scholars except Gordon and Burn, along the northern slopes of Mt. Kallidromos at an altitude several hundred feet below the backbone of the mountain, would take Hydarnes by the site of the modern monastery of the Panagia, or by a lower spot east of this site. These positions were in easy walking distance of the Persian camp, which was located just below at the northern base of the mountain in the Malian plain. To assume a circuitous and rugged route of many miles and several hours' walking, when the objective was in plain sight of the initial position, seems to this writer impossible.

But the difficulty remains for us to interpret what Herodotus meant by his phrase "the mountains of the Trachinians on their left." As we have seen, there is no interpretation, taking this phrase into

consideration, which does not assume that it applies only to part of the route. Now the phrase *ὅπεα τὰ Τρηχινίων* does not mean the mountain of Trachis town, but the mountains of the territory of Trachis. Béquignon, as we have seen above, has independently concluded that the territory of Trachis extended to Eleutherochori and then eastward, along the ridge of Mt. Kallidromos. We would take Herodotus' phrase, then, to apply to this part of the route, when the territory of the Trachinians would, indeed, be on the invaders' left.

As to Pausanias' statement in 10.22.8. This is to the effect that there are two paths *over Mt. Oita*. One starts above Trachis and is exceedingly steep. The other, that of Ephialtes, leads through the territory of the Aenianians and is more passable for an army. Pausanias' description apparently applies to his own day. We cannot follow Burn in his statement that Ainis no longer existed: a statement disproved by the literary, inscriptional, and numismatic evidence collected by Stählin. It is noteworthy that no route which has yet been proposed for Ephialtes and the Persians goes through any part of the territory of Ainis, as defined by Stählin or Kirsten. That of Munro and Myres comes the closest at a point near the border town of Duovouna, but in Pausanias' day the border was in any case west of this.⁴⁴ We must, therefore, interpret the Pausanias passage to mean that the road led to Ainis, but that Hydarnes used only the first part of the road. It was not his intention to go "over Mt. Oita." Now on the evidence of the ancient fort, we have already maintained that our route for the ascent was the ancient road to Eleutherochori and beyond. It is this first part of the road which the Persians used.

Both of the routes mentioned by Pausanias have been explored by Béquignon. He wrote (p. 42): "Le premier de ces sentiers est celui qui monte sur la rive gauche (de l'Asopos) et non pas, comme le croit Munro, l'ancêtre de la route moderne." Elsewhere, Béquignon described this way in greater detail.⁴⁵ He continued: "Le second est celui qui permet d'aller à travers l'Oeta, au pays des Énianes, c'est-à-dire à Hypati. . . . Il passe par la vallée du Haut-Asopos, d'où l'on gagne, comme le fit M. Acilius Glabrio, la région méridionale du sommet de l'Oeta."⁴⁶

⁴¹ *op.cit.* 482-483.

⁴² *op.cit.* 489.

⁴³ *op.cit.* 487.

⁴⁴ So Stählin, *op.cit.* 221 and 226.

⁴⁵ *op.cit.* 40.

⁴⁶ The reference to Glabrio's route is contained in Livy 36.30; cf. Béquignon, *op.cit.* 20.

C. Phocian position. Herodotus (7.217-218) gives the following information about the Phocian position:

1. It was ἐπ' ἀκρωτηρίῳ τοῦ ὄρεος.
2. It was a position where the Phocians could guard their own country—(ρύμενοι τὴν σφετέρην χώρην).
3. The mountainside roundabout was covered with oak.
4. The Phocians fled ἐπὶ τοῦ ὄρεος τὸν κόρυμβον. Obviously, the ἀκρωτήριον is lower than the κόρυμβος of the mountain.

The various sites which have been offered for the position where the 1,000 Phocians were surprised are as follows:

1. Sastani: Grundy and Harmening. This position may be defined as a saddle, marked on the Kromayer-Veith, *Schlachten-atlas* map, no. 5, as having an elevation of 960 m. The peak of the range, which is today called Sastani, is due north and attains an elevation of 1048 m. Grundy confidently wrote: "Towards the summit above the pass is an old φρούριον, which evidently guarded the path in former days. There can be little doubt that this is where the Phocians were stationed. It is at the true summit of the path . . . and accords with the little Herodotus tells us of the scene of the surprise, save that the trees hereabouts are not oak, but firs."⁴⁷ For the views of Harmening, who follows Grundy, see Kromayer, *Schlachtenfelder* IV 53.

Sastani rises precipitously above the hot springs at Thermopylai. The northern edge of this table-land commands a magnificent and unimpeded view of the entire Malian gulf. Plate 54, fig. 6 is a photograph taken from this position. Any garrison stationed on any portion of Sastani could with little effort have been in visual communication with those occupying the Phocian Wall hill below. The failure of the Herodotean Phocians to use such communication is an argument against this position. It may be added that for several hundred yards along the peak of Sastani there are today (1956) remains of a rubble wall made of medium-sized rocks.

2. Monastery of Panagia: Munro (1902). Munro

argued forcibly that the Phocians must have defended what he regarded as Pausanias' "steep path" as well as the Anopai. He therefore posted the Phocians at an intersection of two tracks, not far from the Monastery of Panagia. He held that this was confirmed by Grundy's report that there were oaks in the forest above.⁴⁸ Munro wrote: "Herodotus's expression, ἐπ' ἀκρωτηρίῳ τοῦ ὄρεος (7.217), can no more be pressed than his κατὰ ράχιν τοῦ ὄρεος (216), or ἐπὶ τοῦ ὄρεος τὸν κόρυμβον (218). It is likely enough that he travelled the coast road, but the upper path remained to him vaguely something 'up there.'"⁴⁹ Munro, too, had evidently not then traversed the Anopai for he contented himself with citing Grundy about the oak trees in the forest above the Monastery.⁵⁰

3. One mile east of Eleutherochori: Munro (1926) and Burn. By 1926 Munro had changed the position to a "dip between the steep hill which stands north-east of the hamlet (Eleutherochori) and the westernmost outlying height of the Lithitzia range."⁵¹ This dip was "about a mile to the east of" Eleutherochori. Munro now regarded this as a junction-point of "the Asopus road, the path from the eastern end of the Trachinian cliffs, and the Anopaea path." Burn would seem to endorse Munro's selection; for he writes as follows: "The 'peak of the mountain' where the Phocians were encamped would be (as Munro has it) Lithitsa."⁵² Since for Munro "Eleutherochori" is neither the "Palaio-Eleutherochori" of most maps (including Kromayer's) nor the modern "Eleutherochori," but a now extinct village about two kilometers west of modern Eleutherochori,⁵³ it is difficult to see how Burn's path could have swung so far west. Munro's position must be on or near the high point of the modern Lamia-Athens highway; in any case it is clearly west of modern Eleutherochori.

4. Southeastern part of Lithitsa: Gordon. This position is defined by Gordon as "on the ridge at the highest part of the pass betwixt the two sugar loaf tops of Kallidromos."⁵⁴ Kromayer's interpretation of Gordon's position is clearly marked on the map in *Schlachten-atlas*, no. 5.⁵⁵ As Gordon notes, from Nevropolis "the ground falls by a long slope to the upper or Dorian valley of the Cephissus."⁵⁶ A force

shifted somewhat to the west. In any case, it should be noted that Kromayer makes no claim to exact accuracy for his contour lines.

⁴⁷ *op.cit.* 303.

⁴⁸ *JHS* 22 (1902) 314.

⁴⁹ *ibid.*

⁵⁰ Grundy, *op.cit.* 302.

⁵¹ *CAH* IV 296.

⁵² *op.cit.* 488.

⁵³ See the map in *CAH* IV, facing page 293, and *supra* n. 23.

⁵⁴ *op.cit.* 11.

⁵⁵ My own guess would be that Gordon's position should be

⁵⁶ *op.cit.* 7. Gell's itinerary (*Itinerary of Greece* [London 1827] 272) of his route from the bridge of the Spercheios river to Salona states that he passed through Nevropolis, where an

stationed here was certainly covering, or guarding, Phocis. Moreover, the grassy punch bowl which constitutes Nevropolis today contains many large oak trees, the largest I have seen in Greece. Some appear in the illustration in pl. 55, fig. 7. This is quite in contrast with the ridge Sastani which now, as in Grundy's day,⁵⁷ has no oaks.⁵⁸

5. Finally, there is a hill immediately southeast of the steep peak labelled "Pyramid-rock" by Burn on his map,⁵⁹ which I climbed because of its commanding position. I discovered that the brow of the hill was encircled by the remains of a rubble wall. This would seem the most suitable candidate for the Phocian position, guarding as it does the path labelled by Burn as Kaloverolakha and the southern path by the lake. This hill is illustrated in pl. 55, fig. 8. Near this point the early nineteenth century roads from Drakospilia, Boudounitz and Salona must have merged. There is no better position for a defense of Phocis against an invader from the Spercheios valley. Moreover, this position guarded

other road diverged to "Draco Spalia and Bodonitza." He suggested that the latter road was the "one by which the Pass of Thermopylae was always rendered useless." In the map at the back of Pouqueville's *Histoire de la Régénération de la Grèce* III (2nd ed. Paris 1825), a main road is clearly marked leading from Nevropolis toward Salona.

⁵⁷ *op.cit.* 303.

⁵⁸ Sastani has been largely burned over, but the charred trunks are fir and pine. Among the seedlings I saw only one oak.

⁵⁹ *op.cit.* 484. For an excellent description of the paradise valley, in the shape of a long trough, which runs south of Lithitsa and parallel with the watershed ridge, see Burn, *BSA* 44 (1949) 315-316. This is the "fair way," one of the loveliest places in all Greece.

⁶⁰ Godley's translation: κατὰ τε Ἀλπηνὸν τόλιν, πρώτην δόνατα τῶν Λοκρίδων πρὸς τῶν Μηλιέων, καὶ κατὰ Μελαμπύον τε καλεόμενον λίθον.

⁶¹ *Herodotus* 250. Cf. Oldfather, *RE* s.v. Melampygos 3.

⁶² *op.cit.* 239.

⁶³ *RA* 4 (1934) 20.

⁶⁴ See, for example, Stählin, *RE* s.v. Thermopylen 2407. But the excavations of Béquignon have now proved by ceramic evidence that the core of this wall, which contains many tiles, is Roman. "Sur la date du mur, je crois qu'aucun doute n'est possible. Il fut bâti à l'époque où fut livrée la bataille entre Antiochus et les Romains (fin avril 191)." *op.cit.* 20. See Livy 36.16. For the additions of Justinian, see Procopius, *De aedificiis* 4.2. Another wall runs in a more or less north-south direction along a ridge which rises abruptly immediately west of the Great Ravine. Plate 55, fig. 9, taken from a position high up on the northern slope, shows both the ridge and the ravine. This wall is duly marked on maps which relate to the battle of 191 B.C. See, for example, Kromayer, *Antike Schlachtfelder* II, Karte 5, where the length of the wall measures one kilometer. I can, however, discover no reference in the voluminous literature on Thermopylae to an extensive wall much higher up the mountain slope. After walking in an easterly direction about 50

a route by which a large body of men could have advanced.

D. End of Ephialtes' path. Herodotus (7.216) states that the path Anopaias ends "at the town of Alpenus, the Locrian town nearest to Melis, where is the rock called Blackbuttock."⁶⁰ As recently as 1953, Myres wrote: "The 'Stone of the Black-rump' . . . has still to be sought along the descent."⁶¹ Myres' statement might still be said to hold even though he ignores Béquignon's claim to have identified the Melampygos as rocks on a hill between the second and third passes,⁶² for Béquignon had earlier candidly described the hill, as follows: "au vrai, cette butte porte quelques rochers noirâtres noyés dans une terre crayeuse, mais je n'y ai rien vu d'autre."⁶³ Scattered rocks hardly constitute the landmark we seek.

On the left (north) side of the modern Lamia-Atalante highway, about half a mile east of the East Gate, on the ridge which today carries the remains of the so-called Justinian wall,⁶⁴ is a hill

minutes from the monastery of the Panagia on a path which follows the route proposed by Grundy and others for the Anopaias, we encountered the remains of a remarkable wall. It is made of unsquared medium-sized stones set in mortar. I would estimate the thickness of the wall at from eight to ten feet. I saw no such tiles as are to be found in the wall of the East Gate. The wall, running in a north-south direction, crossed our path at an elevation of 2,500 feet. Whether the wall is of the period of Antiochus or of Justinian I would be unable to say. Plate 55, figure 10 is a photograph of a section of this wall. As we continued along the path, we found at an elevation of 2,600 feet a fountain paved with large red bricks. The construction is of hard stucco, and the large basin is still used today as a watering-trough for the horses which graze on the mountain. I would presume that the fountain was of Roman date, and that it was used by a garrison in connection with the wall. A shepherd of the mountain told us that the wall runs for several miles along the northern slopes of Kallidromos, and that parts of it have been used by the natives for building materials. On another occasion, when proceeding from Eleutherochori to the Monastery of the Panagia along a well-defined modern path, I discovered a stretch of several hundred yards of this same wall. This stretch was just to the right of the modern path starting at a point below the Lamian orphanage and continuing eastwards past a large and prominent spring of the coolest and most crystalline water I have tasted in Greece. The water of this spring is today collected into several troughs for animals. On a steep hill just to the northwest of the beginning of this stretch of wall, I was led by a native of Eleutherochori to another section which seems to encircle the hill. This section comprises a double wall, and there are crosswalls, so I would assume that the hill constituted a fort. The remains of this section of wall are very difficult to discern, and I would never have seen it had it not been pointed out to me. At such a steep point of the hill, one would never *a priori* suspect the existence of a wall. I should report that all of this section of the wall is of mortar made with medium-sized stones, but without tiles. While on

which stands out into the Malian marsh. If one views the Thermopylai area from the heights above, one of the most prominent physical landmarks is a high boulder which rises midway on the northern side of this hill. The height of this boulder, if measured from its northern base, is probably more than 20 feet, and the width at its base is about the same. And the configuration of the rock at the top attests to the appropriateness of the picturesque ancient appellation. The photograph in pl. 55, fig. 11 was taken from a position east of the rock. Furthermore, this rock is located on the hill which has been identified as the site of Alpenos. This is the hill which Grundy identified "with the remains of a walled acropolis on a hill which stands out into the plain from the *πιναρέην* or lower slope of the mountain, about half a mile beyond the east gate."⁶⁵ Similarly, Stählin has written: "Man vermutet es (Alpenos) mit Recht 0.8 km. hinter dem Osttor auf einem Hügel mit den Resten einer Akropolis."⁶⁶ I have found a fair abundance of pottery sherds on this hill, although none which could be used for purposes of exact dating. We may be certain in any case that we have in the site of Alpenos and the stone of the Black-Buttock the very place where the path of Ephialtes ended.⁶⁷

In conclusion, I would suggest that Ephialtes with the Persians "having crossed the Asopos river" went southwards up the Chalkomata road to a position near modern Eleutherochori where he turned eastwards along the ridge of the mountain to Nevropolis. When the Phocians pulled into their "keep" by the little circular lake, the Persians continued to Old Drakospilia, then down the Alpenos ridge⁶⁸ to the Black-Buttock. Essentially, we return

the subject of walls, I should like to point out that there is another section of wall to which I can find only a passing reference in the literature (on the map in Béquignon, *op.cit.*, fig. 19. The map does not indicate the direction of the wall). This seems particularly remarkable because the wall runs for several hundred yards in an area between the First and Second gates. This wall is of mortar but includes tiles, and seems to be of identical construction with the wall of the Third Gate, which Béquignon has proved to be of the period of Antiochus (191 B.C.). A section of this wall runs straight up the lower slope of Kallidromos at a point just west of the modern spa, which is itself located west of the Middle Gate. This section lies at a barbed-wire fence which marks the western limits of the property of the spa. The area within the wall is filled with late sherds. I did not map this section, but would infer that the wall bounded a large enclosure. On my last visit to Thermopylai, when time was short, shepherds pointed out a hill on the eastern part of Kallidromos which they said contained a *kastro*. I know of no reference in the literature to a *kastro* in this position, but I was unable to check the shepherds' report. Mt. Kallidromos,

to the route of Major-General Gordon who in 1837 had the advantage of ascending to Nevropolis along the Lamia-Phocis road as it existed in his day.⁶⁹ I may report that I have made the trip in a jeep, with Mr. Vanderpool as the driver, from Eleutherochori through Nevropolis and Old Drakospilia, then northwards to the modern Lamia-Atalante highway at a position not far from ancient Alpenos. This was a route by which an army of 10,000 men could have proceeded.

The present writer, who has spent many days walking over the battlefields of Plataia and Thermopylai with text of Herodotus in hand, cannot leave this phase of the subject without commenting on the remarkable accuracy and fullness of the Herodotean topography of these battles. Topography is, of course, a matter open to inspection and verification by all comers, in Herodotus' day, as in our own. The topography of Plataia proved difficult chiefly because in the great plain of the Asopos Herodotus had only such landmarks as temples, shrines, and springs, the names of which were known to the traveller of his day, but have subsequently been lost. As to Thermopylai, we can pronounce with some confidence the verdict that the description is unquestionably faithful, a verdict based on the recovery of the antique landscape by archaeology.

The second problem to be considered is the date of the Phocian wall. Before the excavations of Marinatos, the opinion commonly held about the so-called Phocian wall, on the basis of the traces above ground, was that it must have extended along

all in all, must be the most heavily walled mountain in Greece, and yet few of these walls have been reported in the literature. It is apparent that the whole history of the mountain must be restudied, and the walls should be carefully examined and mapped. Such a study might well result in an entirely new concept of the battle of 191 B.C. and of the forts mentioned by Livy.

⁶⁵ *Great Persian War* 290-291.

⁶⁶ *op.cit.* 202.

⁶⁷ The identification was first proposed by Marinatos, *Thermopylae* (Athens 1951) 55.

⁶⁸ East of the narrows of the Thermopylai passes, the cliffs open out. As Burn wrote (*BSA* 44 [1949] 316): "There are several possible ways. There would not be a hope, once the enemy were up, of stopping them getting down."

⁶⁹ I cannot leave the subject without acknowledging how much I have learned about Greek mountain topography from the articles of Burn, with reference not only to Mt. Kallidromos, but also to Mt. Helikon (*BSA* 44 [1949] 313-323).

the summit of that spur of Mt. Kallidromos which constitutes the beginning of the Middle Pass. This spur, which runs roughly east and west, rises above 45 m. above the level of the plain. Grundy wrote: "As the sea must at that time have washed the north foot" of this spur of the mountain, a "road must have climbed the west slope of it, which is not particularly steep. . . . Hence it would be blocked by this wall, which runs along the neck, and which was probably carried higher up the mountain slope to the south . . . that is to say, it certainly went farther up the mountain side than I could trace it."⁷⁰ Harmening referred to this wall as a "Sperrmauer,"⁷¹ and the map in Kromayer-Veith marks the wall as extending the width of the Middle Pass.⁷² The photograph in pl. 55, fig. 12 shows the hill of the Phocian wall as it appears from the Kolonus Hill.

The hill was excavated in 1939 by Marinatos. He reported that the wall, about 200 meters long, does not traverse the pass, but faces towards the south, i.e., to the mountains. "Three ascending stairways behind the wall on the north" were regarded by him as possibly belonging to the period of original construction of the wall.⁷³ He wrote: "Eine in ersten Augenblick merkwürdige Tatsache ist es, dass die Mauer dem südlichen Hang des Hügels folgt und dass ihre Fassade nach Süden zu gerichtet ist. So scheint es, als ob Herodot die Sache auf den Kopf gestellt hätte, das heißt als ob die Mauer von den Thessaliern gegen die Phokier errichtet worden sei."⁷⁴

The rectangular structure at the southwestern end of the wall, earlier excavated by Béquignon and labelled as a Polyandron (with question

mark), or common grave of the Greeks,⁷⁵ was found to be the foundation of an almost square tower. The tower projects toward the south and is entered from the north; so there is no question but that the wall faces south. The wall, then, controlled the stadium-like depression through which the ancient road passed, and the defenders of the tower and of the wall had their backs to the north, i.e., to Thessaly. Their faces were toward Phocis.⁷⁶

Now Herodotus explicitly states that "the wall was built by the Phocians for fear of the Thessalians."⁷⁷ Since the wall faces south, there would seem to be only two horns to our dilemma. Either, as Marinatos' words might seem to suggest,⁷⁸ Herodotus was mistaken about the wall, or it cannot be pre-Persian. The latter is the conclusion of Kirsten. He states: "Die von Marinatos freigelegte Mauer kann nach ihrem Stil erst lange nach 480 errichtet sein; dann erklärt sich auch ihre Lage in Front gegen Lokris: sie ist Grenzmauer der Malier nach SO, nicht der Phokien nach N."⁷⁹ Marinatos, on the other hand, had insisted that the core, made of great rough-hewn blocks of local limestone, was very archaic, and built well before the Persian War.⁸⁰ Scranton classifies the wall in his List A under the heading "Walls showing Lesbian influence."⁸¹ He elsewhere writes: "A consideration of the preceding remarks, coupled with an examination of List A, will show that Lesbian masonry in all forms (excluding archaizing) is confined to the period before the Persian wars."⁸² The words which should be emphasized in Scranton's classification are "Lesbian influence." The stones often do not fit closely together; the joints are sometimes quite open. The masonry is of a very rough Lesbian

⁷⁰ Great Persian War 289.

⁷¹ Kromayer, *op.cit.* IV 38.

⁷² Schlachten-atlas, nos. 6 and 7.

⁷³ AJA 43 (1939) 700.

⁷⁴ Bericht über den VI. Internationalen Kongress für Archäologie, Berlin 21-26 August 1939 (Berlin 1940) 336.

⁷⁵ RA 4 (1934) 22ff. Cf. *La Vallée du Spercheios* (Paris 1937) 240.

⁷⁶ Burn (*op.cit.* 481) has failed to recognize this. He wrote, "the Phocian wall crosses the road, not at right-angles, but at forty-five degrees. It thus gave exactly the 'text-book' post of vantage beloved of all Greeks when setting defences: an elevated position from which to shoot at an enemy advancing along the beach, from his unshielded side." But the wall faces to the mountains; and Marinatos has demonstrated that the road did not run along the beach (as Harmening too had earlier argued) but along the mountain side of the preserved wall.

⁷⁷ 7.176 (Godley).

⁷⁸ It should be stated clearly that Marinatos did not accept this conclusion; he regarded the wall as Phocian, and stated that the staircases were used for rapid ascent by the defenders. He regarded his conclusion "dass die alte Strasse dicht unter der Mauer verlief" as confirmation of the Phocian origin of the wall. "Wir brauchen also vorläufig Herodots Meinung nicht weiter zu diskutieren." By this interpretation, the Phocians, stationed to the north, would have ascended to the wall against an enemy (Thessalian) who in turn came from the north. This northern enemy would be assailable only after they had passed south of the tower and had their backs to the defenders. Such a wall could be used by southern defenders only as an ambuscade against a very careless enemy coming from the north.

⁷⁹ In Philippon, *Die griechischen Landschaften* I (Frankfurt 1950) 267.

⁸⁰ Thermopylae 59.

⁸¹ Greek Walls (Cambridge 1941) 161.

⁸² *op.cit.* 43.

style; portions are of a rubble type.⁸³ Plate 55, fig. 13 shows section of this wall.

Unfortunately, Marinatos obtained no ceramic evidence for his date. Béquignon, in his 1933 excavation of the tower, discovered "par ailleurs, ici et là, des fragments de céramique à vernis noir,"⁸⁴ but he expressed no opinion about the date of these fragments. Possibly the earlier excavations by Skias,⁸⁵ Kastriotis⁸⁶ and others had destroyed most of the data.⁸⁷ The present writer would be unwilling on the basis of the available evidence to accept the conclusion that Herodotus was incorrect in his description. He does believe, however, that higher up the hill south of the excavated wall there are rocks which seem to be laid in a straight line. If these should prove to be walls of similar con-

struction, they might yield ceramic evidence which would fix a more secure date. Until such excavations are undertaken, I would incline to regard the wall as basically Phocian but reconstructed by the Trachinians against their southern neighbors out of blocks, and in a style, earlier used by the Phocians. The date would be not long after the Persian wars. This would explain both the style of the wall and the fact that it faces south.

In any case, as Marinatos has pleaded,⁸⁸ the excavation of this important historical site should be continued in the distinct hope that the difficulty might be resolved.

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⁸³ *RA* 4 (1934) 24.

⁸⁴ Βένερης Παράστου II (1898) 255-260.

⁸⁵ *Praktika* (1899) 82.

⁸⁶ See the comments of Béquignon, *op.cit.* 21, 24, etc.

⁸⁷ *Thermopylae* 4.

⁸⁸ Published photographs of the wall include: Béquignon, *RA* 4 (1934) 24-27, figs. 6, 7 and 8; Marinatos, *Bericht über den VI. Internationalen Kongress für Archäologie, Berlin 21-26 August 1939*, pl. 26, and *Thermopylae* 57 and 58; Blegen, *AJA* 43 (1939) 698, fig. 2; *AA* 55 (1940) 195, figs. 43 and 44.



Archaeological Notes

COUNCIL FOR OLD WORLD ARCHAEOLOGY

A new service providing archaeological information for scholar and layman has been announced by the Council for Old World Archaeology: a survey and bibliography of current archaeological activities in every region of Europe, Africa, Asia and Oceania, and a bibliography of current publications, selected and annotated for these same twenty-two regions.

The COWA Survey and Bibliography will appear biennially, five or six areas being covered every six months. The first group is now ready, and consists of Survey and Bibliography for Central Europe, Eastern Mediterranean, Northwest Africa, Western Asia, Northern Asia and Indonesia. The second group, covering the British Isles, European Russia, West Africa, Southern Asia and the Pacific Islands, will be issued in April or May, 1958.

COWA is an agency for service, not a learned society. It is a non-profit corporation, control of which is vested in representatives officially appointed by nine American organizations: Archaeological Institute of America, American Anthropological Association, Section H (Anthropology) of American Association for the Advancement of Science, American Oriental Society, American School of Prehistoric Research, American Schools of Oriental Research, Society for American Archaeology, American Association of Physical Anthropologists, and the American Numismatic Society. COWA was formed to familiarize the many diverse groups of archaeological specialists with the activities of others, and to enable them to share information of value to all. While this project is primarily designed to supply a lack in America and to meet American needs, the publications will of course be available to foreign scholars and their cooperation in every way will be heartily welcomed, not only as subscribers, but as assistants in supplying news and bibliographical titles.

The scope of the Surveys and Bibliographies will be very broad. For each region listed below every period will be covered, from that of the earliest Palaeolithic remains to the latest historic time in which significant archaeological work has been done. This comprehensive policy will distinguish the work of the Council from all other previous undertakings, since although there are a number of excellent publications dealing with particular areas and periods, the need now is to cover *all areas and periods*, and thus to emphasize the organic unity of the progress of man and the close interrelationship of the problems which the archaeologist encounters in trying to trace that progress.

Europe (8 areas)

1. British Isles—England, Scotland, Wales, Ireland
2. Scandinavia—Denmark, Norway, Sweden, Finland

3. Western Europe—France, Belgium, Holland, Germany (entire old Germany), Switzerland
4. Western Mediterranean—Spain, Portugal, Italy, Malta
5. Central Europe—Austria, Hungary, Czechoslovakia, Poland
6. Balkans—Rumania, Bulgaria, Yugoslavia, Albania
7. Eastern Mediterranean—Greece, Cyprus
8. European Russia—Russia in Europe (incl. Estonia, Latvia, Lithuania, Caucasia, both Cis- and Trans-)

Africa (6 areas)

9. Northeast Africa—Egypt, Libya, Sudan
10. Northwest Africa—Morocco, Algeria, Tunisia, Western Sahara, Canary Islands
11. West Africa—Senegal, Gambia, Portuguese Guinea, French Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana (Gold Coast), Togo, Dahomey, Nigeria, Fernando Po
12. Equatorial Africa—Cameroons, French Equatorial Africa, Belgian Congo, Angola
13. South Africa—Union of South Africa, N. and S. Rhodesia, South West Africa, Mozambique
14. East Africa—Kenya, Uganda, Tanganyika, Ethiopia, Eritrea and the three Somalilands

Asia (4 areas)

15. Western Asia—Arabia, Israel, Jordan, Syria, Lebanon, Turkey, Iraq, Iran, Afghanistan
16. Southern Asia—India, Pakistan, Ceylon
17. Far East—China, Tibet, Chinese Turkestan, Mongolia, Manchuria, Korea, Japan, Formosa
18. Northern Asia—Siberia, Russian Turkestan

Oceania (4 areas)

19. Southeast Asia—Burma, Thailand, Indochina, Malaya
20. Indonesia—Islands of the East Indies (from Sumatra to, but not including, New Guinea), Philippines, Madagascar
21. Pacific Islands—Melanesia (including New Guinea), Micronesia, Polynesia (including New Zealand and Hawaii)
22. Australia—Australia and Tasmania

NOTE: Southeast Asia is listed under Oceania because the archaeology of the area is so closely connected with that of Indonesia.

Preparation of the Survey and Bibliography for each area is the responsibility of the Area Editors, who are in most cases Americans, assisted by foreign correspondents. The Editor-in-Chief and President of the Council is Lauriston Ward, Curator of Asiatic Archaeology at the Peabody Museum, Harvard University. Expenses during the organization period have been met by gifts from several individuals and especially by a grant from the Wenner-Gren Foundation for Anthro-

pological Research. Available funds are not sufficient to permit any free subscriptions or free exchanges with other publications; rather it is hoped that a large subscription list will be built up from archaeologists who are specialists in particular areas and periods but whose problems often extend into other areas and periods, from scholars in other disciplines, historians, linguists, students of the fine arts, etc., from ethnologists and other social scientists, and from intelligent laymen, who would like to know in concrete terms what archaeological research is accomplishing and what light it can throw on the problems of the world today.

The subscription price is \$4.00 a year; the price of Survey and Bibliography for a single area is \$1.00. Subscriptions should be addressed to COWA, 11 Divinity Avenue, Cambridge 38, Mass.

THE CIRCUS OF NERO AND THE VATICAN EXCAVATIONS

The publication of *The Shrine of St. Peter*, by Jocelyn Toynbee and J. Ward Perkins (Longmans 1956), draws further attention to certain problems which were raised by the official Vatican report in 1951. As the excavations showed, the tradition that Old St. Peter's was built with its three southern *navate* resting upon the three northern supporting-walls of the circus of Gaius and Nero was based on a misunderstanding, or a deliberate falsification, of the evidence revealed when the old basilica was demolished. The notes made by Grimaldi in the sixteenth century, and published by Huelsen in *Misc. Ceriani* (1910) 272ff, include a drawing of a detailed reconstruction of the circus, with a complete circuit of seats, six towers, triple *metae*, and the existing obelisk, standing duly in position on the line of the *spina* (not itself represented in the drawing), where, according to "a tradition current in Rome from time immemorial," St. Peter was executed (Lanciani, *Pagan and Christian Rome*, 127). Where the alleged site of this structure has been excavated down to virgin soil, no trace has been found of any building of any sort (T-WP, 9). Moreover, the newly-discovered tombs occupy the space where earlier topographers had been inclined to place the road which T-WP regard as essential for public access to the Circus, and which is indeed mentioned in the oldest accounts of St. Peter's place of martyrdom. A new orientation is therefore devised, whereby the road ran to the south of the tombs discovered beneath the present basilica, and probably to the north of the obelisk and of the two circular Roman tombs just to the west of it which were demolished to make room for the southern apse and the sacristy of the present building (T-WP, 10-11 and fig. 1, p. 4). This is satisfactory enough, but leaves an unsolved mystery as to why the obelisk stood where it did: none of the suggested solutions to this can pretend to be satisfactory (*ibid.* 20, n. 34). Unless the obelisk stood in some quite unprecedented position in the circus, it appears impossible fully to reconcile the evidence of the site as now re-

vealed with the statements of Pliny (*N.H.* 16.201 and 36.74), that the obelisk stood "in Vaticano circa" and the inscription of C. Popilius Heraclia (T-WP 9-10, and 19) requesting that his tomb, actually found in the cemetery beneath St. Peter's, should be placed "in Vatic. ad circum" (*AEpigr* [1945] 136) (cf. de Vischer in *AntCl* 15 [1946] 120).

Although, as T-WP say (p. 12), any final judgment must await the excavation of the site from which the obelisk was moved in 1586 (an accessible but highly inconvenient position for any such enterprise), the dilemma may be resolved by a more detailed examination of the literary sources for the location and nature of the Circus.

In the first place, the Circus is referred to by Pliny (*N.H.* 36.74) as "Gaii et Neronis principum" (not, it should be noticed, of Claudius), and (*ibid.* 16.201) the former emperor is credited with the erection of the obelisk, as is borne out by the extant inscription. Suetonius, however, in *Cal.* 21, gives as Caligula's public buildings only the aqueduct from Tibur and an uncompleted amphitheatre in the *Saepta*; *ibid.* 54.1 he says "aurigabat extracto plurifariam circa," though never, it appears, in public, as Nero was to. One of the places where he drove was the so-called *Gaianum* (*Dio* 59.14.6), generally placed to the northwest of Castel S. Angelo, though there is no evidence that this was more than a convenient open space, at this period at least. Another was presumably the Vatican circus, whatever that comprised.

In the next reign, Claudius' use of the Circus in the imperial gardens is not clearly stated by Suetonius. In *Cl.* 21.1 he divides up the emperor's games, as is his way, in a rather muddled *partitio*: "spectacula non usitata modo ac solitis locis, sed et commenticia et ex antiquitate repetita, et ubi praeterea nemo ante eum." Each of the three headings is duly picked up: the first by games in Pompey's theatre, the second by the secular games, the third by "circenses frequenter etiam in Vaticano commisit, nonnunquam interiecta per quinos missus venatione" (the interpretation of such *partitiones* in Suetonius I have discussed elsewhere). What emerges from this is that no one before Claudius had actually given public races in the Vatican gardens—not, that is to say, Caligula, who might certainly be expected so to inaugurate his circus on its completion. What Claudius' *venationes* amounted to we do not know: only the detail recorded by Pliny *N.H.* 8.37, that a vast snake was killed "in Vaticano."

Then in A.D. 59 Nero copies his uncle Caligula in driving a chariot, like him abstaining from the public circuses. Tacitus *Ann.* 14.14 says: "clausum valle Vaticano spatiū in quo equos regeret haud promisco spectaculo; mox ultro vocari populus Romanus . . ."—a procedure which Suetonius describes as "posito in hortis inter servitū et sordidam plebem rudimento" (*Nero* 22.2). And five years later, for the execution of the Christians, "hortos suos ei spectaculo Nero obtulerat, et circense ludicrum edebat, habitu aurigae permixtus plebi vel curriculo insistens" (Tac. *Ann.*

15.44). All these passages can only refer to the same spot in the gardens described by Pliny as the Circus of Gaius and Nero, since it is unthinkable that a second racecourse should have been made for these relatively informal occasions; and no one appears to have questioned the identification.

But not one of the three Neronian passages mentions the circus as an established building: two refer merely to "hors"; in the other Tacitus appears actually to deny the existence of such a building, with his words "clausum . . . spatium," where an "est" is to be understood and the phrase translated "an area was enclosed." Even if it is argued that Tacitus misunderstood his source, the inference can only be that he was aware of nothing in his own day to warrant belief in a definite circus building which would have rendered Nero's measures unnecessary.

After Nero's death, there is no reason to suppose that the Circus was used for any sort of chariot-driving, public or private. The inscription of Heraclia is interpreted much too imaginatively by T-WP, who suggest (p. 10) "Heraclia was, perhaps, a circus-fan," and, a few lines below, "it was clearly in use in the first half of the second century, in the time of Gaius Popilius Heraclia" (repeated, with the further detail "a place of public entertainment when the tombs were going up," p. 20, n. 33). The alternative, that "the reference to the Circus may be no more than a convenient way of describing the site of the plot," is a much safer and simpler inference from the actual inscription. Nor does the passage from *S.H.A. Elagabalus* 23.1 ("elephantorum quattuor quadrigas in Vaticano agitasse dirutis sepulchris quae obsistebant, iunxisse etiam camelos quaternos ad currus in circo privato spectaculo") demonstrate the continued existence of the circus in any form—rather it shows that tombs had encroached on the area where Elagabalus wished to drive. His actions, whether real or fictitious, are clearly in emulation of Nero, as is so much in that Life, the camels likewise being a copy of those in Suet. *Nero* 11.1; but no matter how idle such stories may be, the topographical detail must reflect conditions at the time of the compilation of the Life, whether in the 3rd or 4th century.

Thus the literary records reveal rather a different history of the Circus than has generally been supposed. Caligula, who was interested in chariot-driving, erects the obelisk from Egypt in his gardens, probably as the centre of a racetrack of which nothing further was constructed in his reign, short as it was. Claudius must have been obliged to erect some sort of structures to mark off his racecourse and to confine the snake and other animals (by no means necessarily carnivorous or otherwise dangerous), just as Augustus needed some temporary enclosure when he exhibited a similar snake "pro comitio" (Suet. *Aug.* 43.4). But Nero seems to have needed to enclose the space afresh for his own driving. A likely parallel would be the course as arranged for the Palio at Siena, where the wooden fence is taken down after each performance. There

was no need for a public road to approach this enclosure, lying as it did in the emperor's private gardens (despite the insistence of T-WP pp. 7 and 20, n. 33 that a road must have existed during the first century). During Nero's reign the Circus, such as it was, attained a notoriety greater than its architectural pretensions; and Pliny, a few years later, locates the obelisk in it under the name of "Circus of Gaius and Nero," because the former had his inscription in full view on the focal point of the area, while the latter had made it famous by his chariot-driving and his massacre of the Christians. It was common enough for far more elaborate structures to disappear without a trace: e.g. Augustus' wooden theatre by the Tiber (*Eph. Ep.* 8.233), Nero's wooden amphitheatre (Suet. *Nero* 12.1, etc.), or Caligula's annually-erected theatre (Jos. *Ant.* 19.1.13); while the authorities possessed wooden stands which were put up for triumphs and similar occasions (Tac. *Ann.* 14.13, Dio 59.10.5) and were probably employed to seat the spectators at the games which took place in the Campus Martius or "in omnibus urbis regionibus," as Suet. *Nero* 4. Indeed the Vatican circus, apart from Caligula's obelisk, cannot be expected to have had more architectural elaboration than the common garden hippodrome described by Plin. *Epp.* 5.6.19 and 33, and discussed by Grimal "Les Jardins Romains," 265-69. It is quite possible, though not essential, that the obelisk was from the first integrated with a *spina*, whether of stone or not, the foundations of which at least may come to light if excavation is ever carried out to the south of the nave of St. Peter's: and there must have been some sort of *metae*, even if erected only on the occasion of races. But that the flat space where the chariots drove, or such temporary *spectacula* as were erected from time to time, should have left any traces in the soil beneath the basilica, was hardly to be expected, unless a more systematic excavation should reveal traces of a layer of sand. Nor is there any reason to argue from the absence of such traces that the Circus is to be sought elsewhere than where both tradition and the former position of the obelisk have always suggested.

The history of the site after Nero's death is entirely a matter of inference. H. M. Last has suggested, in an unpublished lecture, that the area was sold or given to the public by Vespasian, as part of his programme of reducing court expenditure and winning the favour of the plebs, as he did by giving up the *Domus Aurea* and restoring the land to public use. This seems likely enough; and one use made of the land will have been the construction of the road postulated for an earlier date by T-WP, running west from the *Pons Neronianus*, as shown by traces under and to the east of the present basilica (p. 7). It is probably no accident that the first known curator of the *Via Cornelii* (if the road in question is to be identified with this) dates from the reign of Vespasian (p. 18, n. 17). The road will have run along the bottom of the slope, just to the north of the obelisk, which was left *in situ*, and of the *spina*, if there was one, and perhaps actually covered

the northern part of the former circus. We do not know what happened to the land on either side of this; but probably during Vespasian's reign the simple graves referred to in the Vatican report as γ and θ were made a little way to the north of the road, as is suggested, though not proved, by a Flavian tile-signature in the latter (T-WP, 183, n. 7). These graves may indeed have lain just outside the original limits of the imperial gardens.¹ This appears a necessary hypothesis if St. Peter was buried on his death in the grave which it is suggested lay beneath the later Red Wall at the base of the niche N¹, as the nearest available point to the actual scene of his martyrdom (*ibid.* 152ff); but otherwise it is easier to assume that the slopes of the hill were always included in the Horti, and were used by spectators to watch the races in the Circus.

About the middle of the 2nd century, there is evidence that the land on both sides of the road began to be more systematically exploited for funerary plots (T-WP, 32); and, although Tacitus early in the century shows no knowledge of an existing circus in the Vatican valley, the name may well have been attached to the area, just as the names "as malum punicum," "ad gallinas," "ad capita bubula," were attached to other localities in Rome, presumably long after the eponymous objects had disappeared. Accordingly

¹ The London *Times* of 28 June 1957 reports a funerary inscription erected by one "Nunnus Neronis servus" from

Heraclia is able to use the phrase "in Vaticano ad circum" simply as a description of the burial-site. The topography of the area is thus in order for the supposed revival by Elagabalus of the imperial circus, which will have involved the destruction of some of the tombs to the south of the road, though not of the impressive rotunda later known as Sant' Andrea, nor perhaps that which became Santa Petronilla (*ibid.* 11), since they stood on the line of the *spina*, and were in any case rather too solid to be swept away for such a purpose.

Thus it appears possible, by inferring from both the literary and the archaeological evidence for the Circus no more than is given, to explain the history of the site in such a way as to accept the traditional account, and to remove all the difficulties raised by the position of the obelisk as it was until the 16th century. This view will be confirmed if excavation round the former site of the obelisk reveals traces of a *spina*, but hardly refuted if it does not. The restoration of the Circus to its traditional position, at the expense of its architecture, may facilitate explanations of the Aedicula beneath St. Peter's, but that is not the purpose of this paper.

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"near the Vatican palace," but the exact provenance is not given.

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FIFTY-NINTH GENERAL MEETING OF THE Archaeological Institute of America (1957)

The fifty-ninth general meeting of the Institute was held in conjunction with the American Philological Association in Washington on 28-30 December 1957. Summaries of the papers presented are given in alphabetical order of the authors' names.

THE PEOPLE OF LERNA: *J. Lawrence Angel*, Jefferson Medical College of Philadelphia.

Almost 400 Greek skeletons studied this summer with support of American Philosophical Society and N.I.H. bring the grand total to over 2,000. Of nine Neolithic Lernaeans one is a complete 10-year-old girl, Basic White, with excessive teeth wear and signs of irregular nutrition; the others, similar but fragmentary, include 3 adults and 4 infants. From the Middle Bronze Age cemetery at Lerna J. L. Caskey and his teams have recovered 230 people; a sample unique in numbers, representativeness, and care of excavation. Adults plus subadults make up only 44% compared with 91% of deaths at ages over 15 in modern America and well over 50% even in Classical Greece. Of the 80 infants 15% appear premature, more show pathology, and excess of males rises with age. Males over 15 average just over 36 at death and females 31 (with excess deaths in early childbearing ages and pelvic signs of many pregnancies). Statures of 65½" and 60¼" for men and for women are 1" below Classic averages, though tallish for the Greek Bronze Age. The pelvis is less deep than in a well-nourished population. Spinal arthritis and disk collapse affect almost 70% of men (why in the neck especially?) and over 50% of women, compared with 15-20% in Americans between 30 and 40. Gout, dental cyst, ankle deformities, sacral hiatus, etc. occur alongside wounds (15%) and fractures (under 10%) "rarer than in America.

The population is extremely heterogeneous: "pre-Greek" types (Basic White 22%, Mediterranean 11% and Alpine 13%) persist beside taller intruders (Nordic-Iranian 25%, Dinaroid 11%, Alpine 10%, and Mixed Alpine 8%) from several sources. Handicapped by high infant mortality this Lerna population was most varied, young, vigorous, and capable of growth in more than the physical sense.

AGONISTIC FESTIVALS IN ITALY AND SICILY: *Irene Ringwood Arnold*, Bennett College.

In earlier studies of local Greek festivals I have attempted to reconstruct the programs of local agones in various parts of the Greek world. In all cases I have

emphasized the agonistic features of the festivals, and have relied mainly on inscriptional records for source material. This paper is an attempt to make a similar reconstruction of the agones in Italy and Sicily, and to answer in particular two questions that seem of paramount importance in this locality. Were the Greek games as unpopular with the Romans as most literary authorities would have us suppose? Did the games in this part of the world follow the pattern of the great Panhellenic festivals, or did the Romans introduce some local features of their own?

The evidence seems to support the conclusion that the Greek festivals, particularly the Augustalia at Naples, the Capitolia at Rome, and the Eusebeia at Puteoli, played a much more significant part in Roman life than is commonly supposed, and may in fact have been one of the unifying factors of the Empire. Significant as these festivals were, however, they did not occasion any notable changes in the established Panhellenic program. Local deviations were rare indeed.

THE PALACE OF NESTOR, 1957: *Carl W. Blegen*, University of Cincinnati.

A full report appears elsewhere in this issue.

THE SYMBOL OF THE MAGNA MATER: *Ida Bobula*, Washington, D.C.

Mesopotamian boundary markers, *kudurru* stones from the Cassite period, show reliefs which are identified as symbols of the main divinities in the Babylonian pantheon. Some symbols, like those of the Sun-God or Moon-God are obvious, but one of the signs became a puzzle. It is the symbol of the Great Goddess: an *omega*-like shape on a low column or altar. The *omega* appears sometimes inverted.

The archaic Sumerian Mother Goddess, Innin, distributed her functions among several later goddesses, her main heir was Bau or Baba, or Gula, goddess of childbirth, life and healing. Scholars related her symbol to her functions and the *omega* was explained as a pair of swaddling bands or the umbilical cord. It is hard to believe, however, that such objects, void of

beauty, shape and dignity would have been used to symbolize a goddess. Hungarian folklore, so rich in motives from Western Asia, provides a clue, naming the rainbow *Bába-bukra*, Bába's headband or ribbon, and naming the Fata Morgana: *Déli-bába*. It may be supposed, that as the Sky-God's son, ENIL was present in storm and downpour, so BABA, the Sky-God's daughter, ruled the milder atmospheric phenomena and the rainbow was considered her headgear. The symbol in question, the *omega*, should be the graphic sign of the rainbow, diadem of the goddess, in analogy with Enil being represented on the *kudurrus* by his horned hat, which recalls the shape of the *alpha*.

ATHENIAN LAW COURTS AND TOKENS: *A. L. Boegehold*, University of Illinois.

At the end of his work, *The Constitution of the Athenians*, Aristotle wrote an excursus that detailed carefully the intricate procedure by which law suits were tried in the Athenian popular courts. The procedure, it appears, demanded, or involved, at several points the exchange of tokens (*σύμβολα*, *AP* 65.2, 68.2, 69.2). The *dikast* receives one token when he enters the court building, another after he has voted, and gives one up in the event of a second vote.

Bronze and lead tokens, stamped with letters, and found in and around Athens, have long been known; but none of them has been successfully identified with those mentioned by Aristotle. There are pieces, however, in two series of bronze tokens, made and used in the fourth century B.C., whose peculiar markings postulate an intimate connection between these tokens and recognized pieces of court equipment, similarly marked.

Once accepted as fourth century, Athenian, law-court *symbola*, the tokens may be identified more precisely as those that were handed out to *dikasts* entering the court building (*AP* 65.2).

THE IDENTIFICATION OF THE APHRODITE WHO BINDS HER SANDAL AND RELATED WORKS OF HELLENISTIC SCULPTURE: *Derickson M. Brinkerhoff*, Rhode Island School of Design.

Almost one hundred replicas of a Hellenistic statue type known as the Aphrodite binding her sandal exist in marble, bronze, terracotta, on coins, and on gems, yet the origin of the figure has been shrouded in obscurity. It has been attributed chronologically to the fourth, third, and second centuries B.C., and both Alexandria and Asia Minor have been called its home. A new examination reveals that this rococo type should be placed at the end of the third century and that it belongs in Northwestern Asia Minor. Such a conclusion may be supported by evidence drawn from the style of the statue, from numismatics, and terracottas.

It is secured by the attribution of another work to the same artist. The *Invitation to the Dance* group of the early second century B.C. may be affiliated with the sculptor who created the Aphrodite who binds her sandal. The implications of this discovery strengthen the hypothesis that Polycharmos, mentioned in Pliny, was the author of the sandalbinder, increase our knowledge of the art of the region under Pergamene domination, and point the way to renewed scrutiny of the concept of a Hellenistic rococo.

EXCAVATIONS AT LERNA, 1957: *John L. Caskey*, American School of Classical Studies at Athens.

Three deep soundings in the Neolithic layer, north and east of the House of the Tiles, produced stratigraphical evidence that confirmed the observations made in 1955 and 1956. The earliest building-levels contain Rainbow ware, which later is superseded altogether by wares with red or brown glaze (*Urfirnis*). The topmost Neolithic strata have yielded a few unusual pieces that may perhaps indicate a third stage, but there is no evidence of blending with the Early Helladic. Remains of monumental E.H. buildings were found again this year at levels antedating the House of the Tiles. Associated with one of them was a large circular hearth of baked clay with a decorated rim and a depression in the flat floor. The character of the settlement in this period has been illuminated further by the discovery of a circuit wall with projecting towers. The wall has inner and outer faces, joined to each other by cross-walls that divide the whole system into compartments; these were living quarters, occupied perhaps by the garrison.

During this final season in the present series of campaigns at Lerna much attention was paid to the conservation of the monuments that are to be kept as a permanent exhibit. Retaining walls were constructed, ancient stone socles were solidified and discreetly cemented, copings of tile were placed over remains of crude bricks, and a large shelter was built in reinforced concrete over the House of the Tiles.

Further reports on these activities will be published in *Hesperia*.

EARLY TRAVELERS' INTERPRETATIONS OF THREE ATHENIAN MONUMENTS, Hadrian's Arch, the Monument of Lysikrates, and the Parthenon: *M. Katherine Donaldson*, Wheaton College.

Ciriaco da Ancona copied the inscriptions of the Arch of Hadrian in the fifteenth century. By the sixteenth it appeared in cosmographies; in the seventeenth drawings by Babin and Carré emphasized the arch. Probably the earliest known description of Athens, from 1395, referred to its inscription. Had Chaucer heard about Hadrian's Arch a few years earlier, at

about the time the Acciajuoli became Duke of Athens? In the *Knight's Tale* Duke Theseus builds an arch with "an ater and an oratorie" "up-on the gate above" to the east of Athens. Chaucer here departs from his source, Boccaccio.

The Monument of Lysikrates has been variously interpreted since the twelfth century. Ciriaco described it as one of a group of "Scenarum cathedras" and labelled the Monument of Thrasyllos a "scenam." Perhaps he here associated them with pavilions along pageant routes, or the stage props, *sedes*, of medieval mystery plays.

Ciriaco's drawing of the Parthenon is reflected by a curious inverted version in Sangallo's sketchbook, which was used by Vasari and Dal Pozzo. Could Palladio, inspired by his adopted name, have been influenced in his designs by the "ingens et mirabile Palladis divae marmorium templum"?

SLOT CEILINGS: A. Trevor Hodge, Stanford University.

The form of ceiling most commonly in use in classical Greek buildings was the coffer ceiling. There did however exist another form both well attested and widely used which has received less attention than its due. Its beams were shallower than those of a coffer ceiling and set much closer together, so that there was left only a series of narrow slots between them. These slots were presumably boarded over on top.

Holes or dressings cut in the stonework to receive the ends of the beams show that there were ceilings of this type in the Sicyonian Treasury at Olympia, the Pinakothike and S.W. Wing of the Propylaia, the Temples of Aphaia, Kardaki, Ceres at Paestum, Poseidon at Sounion, and an unidentified Doric building at Delphi. All these ceilings were of wood except that at Sounion, which had marble beams and, probably, wooden boards covering the slots between them. There is little direct evidence for the use of this ceiling in West Greek buildings, but something very like it often appears in the little *heroa* so commonly featured in South Italian vase painting.

A TERRACOTTA FROM GORDION AND THE TRADITION OF THE SEATED KYBELE: R. Ross Holloway, Princeton University.

A Hellenistic terracotta statuette of the seated goddess Kybele from Gordion (illustrated, *Bulletin of the University Museum* 17:4 [1953] 7, fig. 3) is remarkable because of its size (height, 0.524 m.) and preservation. It is a copy of the large marble from Pergamon (*Altertümer von Pergamon*, VII (1), 69-70 and pl. XII). The suggestion is made that both derive from the 5th Century cult statue in the Metroon in Athens and that the statues from Levadha (*Hesperia* 23 [1954]

pl. 40, c) and Athens (*AthMitt* 37 [1912] pls. xi and XII) may be traced to the same source. The terracotta and marbles indicate that the Metroon figure rested her left hand above her tympanon and did not hold it from below. Such revision of the generally accepted restoration of the Agora Mother establishes a distinction between this cult statue tradition and the pose found in votives, e.g. J. N. Svoronos, *Das Athener Nationalmuseum*, pls. cxvi, CLXXXVIII, CCXXXIX, and CCXL, and reliefs, C. Blümel, *BerlCat III*, K106, pl. 84, in which the goddess holds her tympanon from below. Furthermore, the identification of this cult statue tradition shows the continuity of the seated Kybele type from the 5th century through the Hellenistic and into the Roman Period, which has been hitherto obscured.

THE PREHISTORY OF GREEK SACRIFICE: Michael H. Jameson, University of Pennsylvania.

The principal type of Greek sacrifice employs the burning of certain parts of the victim to achieve consecration and is probably an Indo-European heritage. The late Constantine Yavis argued that the Minoans had no sacrifice of this type since they had no suitable altars (which is both true and significant), and, further, that such sacrifice was introduced at the time of the Dorian invasion (which is improbable on several counts). It is apparent that consecration with burning of parts was not characteristic of Minoan ritual which, aside from incense, grain, or cakes burned on small, movable hearths, employed consecration by "deposition" on various sacred stands, and this method may have been applied to animal victims, as on the Hagia Triadha sarcophagus, if the examples are not under Mycenaean influence. It is necessary to distinguish between Mycenaean and Cretan ritual, i.e. between Greek and "Minoan." The characteristic type of Mycenaean architecture, the megaron with fixed hearth, shows the essential provision for consecration with burning of parts. The large, elaborate hearths of the palaces are clearly of ritual significance (witness the table of offerings beside the main hearth at Pylos) and the earliest post-Mycenaean temples continue to have an interior hearth for consecration. The subsequent neglect of the interior hearth is to be connected with the increasingly public character of sacrifice. For the Greeks outdoor sacrifice was likely to have been common at all times, and, with certain exceptions, this is the rule in the Homeric poems. The later history of "deposition" and of indoor burning of parts is traced in classical Greek sacrifice.

THOSE SUPERSTITIONS ABOUT THE NUNDINAE: Van L. Johnson, Tufts College.

Those superstitions recorded by Macrobius (*Sat.* 1.13, 16-19) against the *nundinae* falling on the first Kalends or any Nones reflect change and fear of

change in the Roman calendar. There is an implication that in early times the *nundinae* coincided with neither of these days. A statistical examination of this implication reveals that the nundinal letter was originally a fixed and not a shifting letter; that it was fixed as F; that this was a *ferial* as well as a nundinal letter; and that the calendars of "Romulus" and "Numa" are authentic. It likewise establishes the view that early Roman chronology was dominated by a cyclic year or true *annus* which contained no gap of uncounted days and had its origin in a 4-month calendar older than any reported by our literary sources. This theory has two important corollaries: 1) that the *Saturnalia*, like the period following the *Terminalia*, was intercalary in origin; 2) that intercalation, in the beginning, was a permutation device adding days to the market-week, not days to the year.

GREEKS, CARIANS, AND THE PURIFICATION OF DELOS:
Charlotte R. Long, Clinton, New York.

This paper will appear as an article in a later issue.

THE PLAN AND CONSTRUCTION OF THE CIRCUS OF MAXENTIUS: *William MacDonald*, Yale University.

The Circus of Maxentius has been inexplicably neglected; inexplicably because it is easily accessible, it is the best preserved of all Roman circuses, and because of its date it may fairly be taken as typical of a large group of important functional structures.

Investigation and survey show that the plan is asymmetrical. The long sides are not parallel but diverge slightly as they extend away from the curved end. The righthand long side (from the point of view of the charioteer at the start) changes direction, turning back toward the *spina* in order to insure fair starting positions by canting or tilting the chord of the *carceres*. This basic plan is found in other Roman circuses.

The construction of the circus has been called "decadent" but in actuality it would seem to exemplify those advanced masonry and structural techniques developed in the later Empire on the basis of changes begun chiefly in the time of Nero. The excellent *opus listatum*, the lightening of the masonry, and the use of terracotta vases in the fabric of the vaults all point toward the coming new architecture.

AMAROUSION POTTERS AT WORK: *Frederick R. Matson*, Pennsylvania State University, and *Henry S. Robinson*, University of Oklahoma.

The present-day practices in a potter's shop at Amarousion are followed from the obtaining and

preparation of the clays through the forming, decorating, firing and sale of the vessels. The potter's problems associated with the nature of the clays and the production of the ware are discussed in relation to the ancient Athenian ceramic products, with illustrations.

ESTABLISHING A SEQUENCE FOR ITALIC WARRIOR SCULPTURE: *Quentin Maule*, Rollins College.

Pre-Hellenistic Italic warrior figurines were catalogued as basis for the seriation.

Primary divisions within this corpus were typological, attained by collating changes in military costume. The fashion for helmets with mobile cheek pieces, for instance, a predominant style in Greek representations toward the end of the sixth century, could hardly have spread to Italy before its Greek popularity. Other details confirm this standpoint: a metallic "bellcuirass" is generally worn by figures with less-developed helmets, while the newer leather cuirass accompanies later types. Figures thus isolated as "earlier" are found to have more archaic features than the "later" pieces. Others are put earlier still by certain connections which they have with material from the great "orientalizing" tombs of Italy.

The most populous class, the extremely attenuated "Etruscan" warrior, is thus found to originate after 500 B.C. This type, separated into subgroups which become progressively thicker-limbed, less archaic, and more plastically-conceived in rendering of detail, evolves into a bluntly rectangularizing figure like the Mars of Todi. Several reliable archaeological indications allow one to place the latter in the first half of the fourth century, leaving the earlier manner, the elongated type itself, to occupy the fifth century, after about 500 B.C., yet before about 400 B.C. The newly-defined fourth-century style is recognizable in many non-military examples which had hitherto been understood quite differently.

A SURVEY BY JEEP OF THE SOUTHERN DESERT OF PALESTINE: *Philip Mayerson*, New York University.

A surface survey of the Central Negev (Israel) and of North Sinai was made in 1956-57. Special emphasis was placed upon studying topographical characteristics and hydrological principles which made sedentary life possible in antiquity for large numbers of people.

Examination of the remains shows that seven urban sites (estimated populations of 1,000-5,000), in addition to many other smaller clusters of habitations, are concentrated in a belt of loess soils and of hills trending for the most part toward the Mediterranean. The area is circumscribed to the east and to the south by sterile desert where, but in isolated places, it is impossible to grow food crops.

The ceramic, worked-flint, and architectural evi-

dence shows that the Southern Desert was inhabited from prehistoric times to the present but that the density of habitation fluctuated greatly. The forces which drive people to settle in a region made sub-marginal by insufficient rainfall must be examined in the light of political and economic conditions not only of Palestine and Egypt, but of the Middle and Far East as well. We are led to the conclusion that the area was most densely inhabited during the sixth, seventh, and possibly the eighth centuries A.D. It is to this time that one must attribute the development of urban centers and the wide network of water-control structures which surround each site. During this period, the land was no more fertile, the rainfall no greater than at present, nor did the inhabitants possess any secret method of water conservation. Prior to 1948, Bedouins (really semi-nomadic) cultivated the area fairly intensively and practiced—and still do—every water conservation technique known to the ancients.

THE POLYPHEMOS PAINTER: *George E. Mylonas,*
Washington University.

To the artist who painted the protoattic amphora of Eleusis (discovered in 1954) I have given the name of the "Polyphemos Painter" because the names of the "Eleusis Painter" and the "Gorgon Painter" have already been used and because on the neck of that amphora we find the story of the blinding of Polyphemos by Odysseus and his companions. On the shoulder of the amphora he painted a wild boar facing a lion, and on the main panel of the body the story of the Gorgons. The last panel has a height of 0.52m and a length of 1.72m; proportions adequate for monumental painting. All his figures are interesting and are painted in an extraordinary manner. However, the Gorgons are his most striking figures and are the earliest representations of these creatures known to us to date. They seem to be more like members of an ancient choros, wearing fantastic masks that transform them into the mythological beings they portray. For these masks the painter used as a prototype the well-known cauldrons with griffins of the Early Archaic period, and the facial features of the Gorgons he drew from those of the griffins. Thus, he used elements developed locally in Greece. As a result, the theory that the type of the Gorgon was borrowed from other lands and cultures has to be abandoned now. The figures painted on the amphora of Eleusis give clearly the characteristic mannerisms of the "Polyphemos Painter" and these prove that he is a different artist from the "Ram Jug Painter" and seemingly somewhat older in date. To the "Polyphemos Painter" can be attributed the well-known Menelaos Stand in Berlin, Crater A35 in the Antiquarium of Berlin, fragment No. P1725 of the Agora, and the neck of amphora No. P4950 of the Agora. The *floruit* of the "Polyphemos Painter" should be placed in the second quarter of the seventh century and his masterpiece, the am-

phora of Eleusis, in the years between 675 and 650 B.C. Incidentally, on his amphora from Eleusis we have the earliest known to date representation of Athena on Attic painting. A detailed study of the amphora and of the painter, in Greek with a summary in English, has just been published by the Archaeological Society of Athens, Greece.

CONNECTIONS OF THE GREEK NEOLITHIC AND THE NEAR EAST: *Ann Perkins*, Yale University, and *Saul S. Weinberg*, University of Missouri.

Two Neolithic painted pottery fabrics of Greece have been found to have striking similarities to Near Eastern pottery. The first of these, the Neolithic Urfirnis (or glazed) ware common in the Middle Neolithic period especially in the Peloponnesus and Central Greece, but now becoming known in Thessaly as well, bears remarkable resemblance in fabric, forms, and decorative motives to the Halaf pottery of Mesopotamia and North Syria. The second and later Greek ware, the matt painted pottery of the Late Neolithic period, is equally closely related to pottery of the Ubaid phase which succeeds Halaf in Mesopotamia and North Syria. Although sometimes postulated, this close similarity has never been well documented, and the connection between Greece and the Near East thus established offers new possibilities for dating the Greek Neolithic period in relative terms.

THE INSCRIBED JAR-HANDLES FROM GIBEON: *James B. Pritchard*, Church Divinity School of the Pacific, Berkeley.

The 1957 excavation at el-Jib in Jordan yielded 53 Hebrew inscriptions written on the handles of jars. The general pattern of the inscriptions is the name of the town Gibeon, the word *gdr*, and one of three names, Hananiah, Azariah, or Amariah. It seems probable that these inscriptions were labels for jars of wine which was made at Gibeon by three firms and bottled for export. There are some variants of this general pattern.

TOWARD A RESTUDY OF THE BATTLE OF SALAMIS:
W. Kendrick Pritchett, University of California.

This paper will appear as an article in a later issue.

THE SIXTH CENTURY BYZANTINE SILVER TREASURE IN KIEV: *Marvin C. Ross*, Washington, D.C.

A Byzantine silver treasure in Kiev consists of a small, round drinking bowl with control marks of the second half of the 6th century, another drinking

bowl on a small foot, and a spoon. Although not one of the greatest, this treasure of Byzantine silver has considerable importance for the history of such silver, and more still for the question of Constantinople versus Syria as the main center of manufacture of this silver.

The spoon is of the type found in Cyprus, Syria, and elsewhere. The small drinking bowl with the Constantinopolitan control-mark recalls a number of pieces discovered in Syria. The same is true of the larger drinking bowl.

These pieces found in Russia suggest Constantinople as the place of origin versus the old idea that such cups were made in Syria. The silver found in Russia that has been stressed in publications hitherto has been of a more elaborate kind. These pieces in Kiev are exactly like those found in the Eastern Mediterranean area and give us quite a different idea of the place of origin of such work. A comparison of this kind of silver with several cups carved in semi-precious stones (i.e., sapphire and garnet) may establish also that they are Constantinopolitan in origin, and give us a further picture of the luxury of the Byzantine Empire.

DJEMILA: A NORTH AFRICAN "POMPEII": *Raymond V. Schoder*, West Baden College.

Founded by Nerva toward the end of the first century on a triangular plateau in a fertile valley between Sétifis and Cirta, Cuicul (modern Djemila) provides an unusually clear and adequate idea of public and private structures in Roman Africa. It was intended as a settlement for veterans, and a garrison to control the roads. The well-preserved and extensive remains vividly illustrate the town's diverse buildings and reveal the stages in its growth and change.

The center of the early town was at the north, where stand the Capitolium, Curia, Basilica Julia, many fine houses, and a Temple probably in honor of Venus Genitrix as Protectress of Rome. These reflect the prosperity enjoyed under the Antonines, when government was in charge of the Legate of the Legion.

In the third century, Cuicul was incorporated into the Province of Numidia. A New Forum was constructed at the southern limit of the original city wall. Taken with its surrounding structures, this is the finest civic square to be seen in Africa, 160 by 103 feet in size. An excellent commemorative arch was built here in 216 to honor Caracalla. Nearby is the dignified Temple to the Gens Septimia, dedicated in 229 by Alexander Severus. A market, conical fountain, basilica, theater, large baths show how the town expanded far to the south as it flourished.

The final stage of growth brought important Christian buildings still further south: two basilicas of the fourth and fifth centuries, a bishop's residence, chapel, and remarkable baptistery.

Good samples of sculpture and mosaics round out

the picture of cultural interests in this military and commercial outpost of the Roman Empire.

A RECONSTRUCTION OF A SILVER AND GOLD VESSEL FROM BUBASTIS: *William Kelly Simpson*, Harvard University.

A study of the silver and gold vessels from the Tell Basta Treasure, discovered at Zagazig in 1906, has resulted in the partial reconstruction of one of the inscribed and decorated vessels through the addition of fragments in the Berlin Museum and the Metropolitan Museum of Art in New York to the body of the vessel and one section of the decorated neck in the Egyptian Museum in Cairo. The vessel in Cairo is illustrated by C. C. Edgar in Maspero, *Le musée égyptien*, vol. 2, pl. 54, 2 (J. 38720/39868). The Berlin fragments are published by A. Scharff in *BerlMus* 51 (1930) 114, figs. 1 (left and center), and 2. One of the New York fragments is illustrated by W. K. Simpson in *BMMA*, New Series, 8 (1949-50) 63 (lower left). The other New York fragments (07.228. 222, 241, 219, 220, and 221) will be illustrated with the paper for the first time and will be subsequently published. The vessel is one of three inscribed for the Royal Butler and King's Messenger to Every Foreign Land, Atumemtneb, the foremost of which is the silver jug with gold handle in Cairo, an object which has been illustrated frequently in handbooks on Egyptian art. A study of the treasure confirms the conclusions of Maspero, Edgar, Montet, Scharff, and von Bissing that these vessels were made in Dynasty XIX or slightly later, and the conclusions of Edgar, Maspero, and von Bissing that they were fashioned in Egypt and not abroad.

EXCAVATIONS AT SERRA ORLANDO (MORGANTINA): *Erik Sjöqvist*, Princeton University.

A full report appears elsewhere in this issue.

THE EVOLUTION OF THE MESOPOTAMIAN CONE AND SPINDLE: *Elmer G. Suhr*, University of Rochester.

The early Mesopotamians knew about the cone-shaped shadow of the moon that reaches the earth during a solar eclipse. They also believed that both the moon and its shadow rotated and thus combined the life-giving pneuma reflected from the sun with the moisture and air of the clouds to dispense fertility in the form of rainfall on the earth. The movement of the moon's shadow made the moon an agent of creation; it was partly responsible for the importance of this body in Mesopotamian astronomy and for the emphasis on the vortex in Greek Pre-Socratic philosophy. The clay cones inserted in the walls of Ur were

meant to bring prosperity to the city and its inhabitants. The small figure of Nannar holding the cone, in the Louvre, is not pushing the object but rotating it; this is the same cone that made its way to Syria and Paphos. Later the city wall as a headdress crowning Aphrodite Tyche was substituted for the cone. When a female goddess superseded Nannar in the east an anthropomorphic spindle (the so-called basket-bearer in the Louvre) took the place of the cone and invaded the sculpture and vases of Greece.

ACTIVITIES IN THE ATHENIAN AGORA, 1957: *Homer A.*

Thompson, Institute for Advanced Study.

In 1957 the American School of Classical Studies (1) completed the installation of museum, storerooms and workrooms in the Stoa of Attalos, which had been dedicated on September 3, 1956; (2) finished the restoration of the 11th century Church of the Holy Apostles; (3) carried out the definitive exploration of extensive areas on the north slope of the Areopagus, a residential district outside the Agora proper; (4) completed landscaping operations in those parts of the area where excavation has been finished. A more detailed report will appear in a forthcoming number of *Hesperia*.

MARGINALLY DRAFTED, PECKED MASONRY IN THE ANCIENT NEAR EAST: *Gus W. Van Beek*, The Johns Hopkins University.

Marginally drafted, pecked masonry has been found in different areas of the ancient East, from Greece to Persia and as far south as South Arabia. Of these areas, only South Arabia has yielded a sufficient number of examples to permit an analysis of its technical and stylistic development. These examples fall into six stages of development—the last two of which are archaizing imitations—which range in date from the middle of the seventh century B.C. to the first century A.D. according to epigraphic evidence.

This type of dressing developed from "rusticated" masonry, with the transition almost certainly taking place in Assyria during the early seventh century B.C. With regard to "rusticated" masonry, we now have a continuous record of its use in the Near East—at sites in Palestine, Assyria, and near Van—from the tenth to the early seventh centuries B.C. Since the Palestinian examples reflect direct Phoenician influence, and since the earliest known examples have been found at Ugarit, we can safely attribute the origin of "rusticated" masonry to the Phoenicians or their Canaanite predecessors.

THE MYCENAEANS IN ACHAIA: *Emily Townsend Vermeule*, Wellesley College.

A current problem in Mycenaean archaeology is the

activity and independence of local kingdoms in Greece outside the immediate dominion of the Argolid. The province of Achaia, though still largely unexplored, presents an assemblage of late Bronze Age material which suggests that the local culture was not only relatively unaffected by the leadership of Mycenae in the east, but also prospered surprisingly after the destruction of the palaces at Mycenae and Pylos. Achaia was apparently bypassed by the "Dorian invasion" and continued to flourish through the end of the sub-Mycenaean era. The collection in the Patras Museum, consisting of over five hundred late Mycenaean vases plus bronzes and jewellery, mostly unpublished, illustrates the peculiarities of shape and decoration which divorce this west coast style from the familiar fabrics of the Argolid, and suggest a possibility of continuity through the Dark Ages. Parallels for some of the Patras vases are found in the Attic Protogeometric groups of the Kerameikos and early Iron Age pottery from Cyprus. The material leads from the archaeological side into problems like the relationship of Achaia and Pylos in the Linear B tablets, the real nature of the Dorian invasion, the dialect affinities between "Achaian" and Arcado-Cypriote, the isolation of fringe areas from the normal line of Mycenaean development, and the nature of survivals from the "prehistoric" period into early classical Greece.

THE FORTIFICATIONS OF SIDE IN PAMPHYLIA: *Frederick E. Winter*, University of Toronto.

Although the walls of Side were rebuilt in Roman times, the stretches on either side of the main gate appear to be Hellenistic. Unlike the obviously late portions, they are built entirely of massive ashlar blocks, with no mortar; and the carefully worked string-courses on the outer face, in contrasting colour and finish, show an aesthetic sensitivity which is unusual in the more utilitarian work of the Romans. Yet these walls are a far cry from simple fourth-century and early Hellenistic systems such as Messene and Herakleia-ad-Latnum. There is evidently a ditch of considerable size in front of the walls (this does not show up well in photographs, but is quite clear on the site); the curtains were flanked at frequent intervals by large square towers, probably of the same general type as those at Perge and Isaura, and were themselves elaborate three-storeyed structures, ten or eleven meters in height.

These curtains are perhaps the most interesting part of the system. They demonstrate not only the remarkable technical development of Hellenistic military architecture, but also the accuracy of the descriptions of Hellenistic military writers, who have at times been accused of representing their own theories as accomplished fact.

At Side, as in some of the systems described by Philo of Byzantium, there are large chambers built against the inner face of the wall, separated by massive

piers of masonry, and either corbelled or vaulted over. But Philo's chambers simply provided shelter for the garrison; those at Side seem to have housed pieces of artillery.

The alure above these chambers, which was five to six meters above ground level, was at least partially covered by a series of small corbel-vaults, springing from the piers which divided the alure into a number of compartments. Each of these compartments had a large artillery-port and a small archer-slot in the outer screen-wall.

The alure at the third-storey level, eight to nine meters above ground-level, was simply an open guard-walk, protected by a low parapet surmounted by crenellations.

Presumably the towers were at least one storey higher than the curtains, i.e. four storeys, with a total height of about fourteen meters. This is approximately the height of the well-preserved towers at Perge, which may serve as a model in restoring those at Side; while the Side curtains are our best guide in attempting the restoration of the stretch of curtain at Perge, in which the vaulted chambers of the ground-storey are still standing, but the upper portions have completely disappeared.

The great height and massiveness of the Side fortifications, the extensive use of vaulting, and the obvious dependence on artillery rather than hand-weapons, are all very typical of the middle and late Hellenistic periods.

EXCAVATIONS IN ALCUDIA, MALLORCA (Baleares): *Daniel E. Woods, Manhattanville College.*

In 1956 Mr. William J. Bryant of Springfield, Vt., Director of the William L. Bryant Foundation (named for his father) conceived the idea of joint archaeological work on Spanish classical sites by Spanish and American scholars and students. With this end in view, the Bryant Foundation purchased a fine 17th century house in Alcudia, Mallorca (the site of ancient Roman Pollentia) and remodelled it. Today the ground floor houses the Archaeological Museum of Alcudia. This summer (July 1st to August 15, 1957) an expedition under the supervision of Dr. Luis Pericot, Univ. of Barcelona, a Spanish archaeologist, Prof. Miguel Tarradell of the Univ. of Valencia (the excavator of Tamuda and Lixus in Morocco) and an American, Prof. Daniel E. Woods of Manhattanville College, Purchase, N. Y., went to Alcudia under the auspices of the Bryant Foundation and conducted excavations in Roman POLLENTIA. In these excavations Sr. D. Luis Amoros, Palma, assisted, also Mrs. Tarradell, Bar-

tolomeo Font of Lluchmayor, and Maria Petrus from Minorca, the latter two pupils of Drs. Pericot and Almagro of Barcelona and Madrid.

Besides uncovering an 8 by 34 meters area of the Roman city, Pollentia, near the preserved ancient Roman wall, excavations were undertaken in a pre-Roman necropolis about 15 miles from Alcudia near the coastal town of Can Picafort. From the evidence of the pottery in the stratigraphic levels Pollentia reveals a foundation of the 2nd cent. B.C. and its destruction in the 4th cent. A.D., i.e. from Campanian B pottery to Clear and Stamped Sigillata. Excavations within the Roman wall itself surprised the excavators, Professors Tarradell and Woods, who expected a Roman Republican wall dating from the foundation of the city. Within the wall the pottery fragments were uniformly datable to the time of Augustus, i.e. Aretine and Thin-walled (Paredes Finas) fragments. At least the part of the wall of the Roman city, Pollentia, which has been studied dates from ca. 10 B.C. to ca. A.D. 40.

The necropolis of Son Real near Can Picafort is on a point of land that juts out into the sea and near a small island which held the primitive population. The graves are dug out of the rocky earth and consist of megalithic circular and rectangular stone tombs, corbelled towards the top and paved and covered with large stone slabs. They are very well constructed and contained handmade, unpainted, grey ware, bronze and iron weapons, and necklaces of the type found in the 4th century B.C. tombs in Ibiza. The tombs are different from any other type found hitherto in Spain.

Dr. Tarradell of Valencia and Professor Daniel E. Woods of Manhattanville College will return to Alcudia next July (1958) and continue excavating the Roman city, Pollentia, and the necropolis of Son Real near Can Picafort. Proceedings are under way to form a Centro Arqueologico Hispano-American in the Baleares, with its basis of operation in Alcudia. On the Board will serve as charter Directors: William J. Bryant, Springfield, Vt.; Dr. Luis Pericot, Univ. of Barcelona; Dr. Martin Almagro, Univ. of Madrid; Dr. Miguel Tarradell, Univ. of Valencia; Sr. D. Luis Amoros, Palma; Dr. Sterling Dow, Harvard; Dr. Walter W. S. Cook, New York Univ.; Prof. Daniel E. Woods, Manhattanville College.

The Bryant Foundation has for several years financed the excavation of the Roman Amphitheatre of Tarragona in Spain under the direction of Samuel Ventura. This excavation was completed in 1957 and will soon be published.

THE ROYAL TOMB AT GORDION: *Rodney S. Young, University of Pennsylvania.*

A full report appears elsewhere in this issue.

N E C R O L O G Y

ALAN JOHN BAYARD WACE, Nestor among students of early Greek archaeology and history, died in Athens, Greece on November 9, 1957, at the age of 78. He is survived by his wife Helen and daughter Elizabeth.

Educated at Shrewsbury School and Pembroke College, Cambridge, Wace embarked on a long, varied and fruitful academic career in the course of which he moved from country to country with the freedom of his Norman ancestors: Librarian of the British School at Rome (1905-06), Lecturer in Ancient History and Archaeology at St. Andrew's (1912-14), Director of the British School of Archaeology at Athens (1914-23), Deputy Keeper of the Victoria and Albert Museum (1924-34), Laurence Professor of Classical Archaeology at Cambridge (1934-44), Professor of Classics and Archaeology, Farouk I University, Alexandria (1943-52).

Wace's ties with America were close (his wife being the daughter of a professor at Northwestern University), and his visits were frequent. In 1923 he delivered the Vanuxem lectures at Princeton University and in 1939 the Armstrong lectures at the University of Toronto. As Norton Lecturer of the Archaeological Institute of America he travelled across the country in 1923-24. He repeatedly held membership in the Institute for Advanced Study at Princeton (1948, 1951, 1952-55) and was long a fellow of the American Philosophical Society which contributed to the support of his excavations at Mycenae.

Throughout his career Wace alternated excavation with teaching and administrative duties: a happy combination inasmuch as it gave him the field archaeologist's control of materials together with the scholar's command of literature both ancient and modern. To few men has it been given to excavate at such a galaxy of sites: Sparta, Thessaly, Corinth, Troy, Alexandria, and, above all, Mycenae. Writing with ease and lucidity, Wace left behind him authoritative books on all the principal fields in which he had worked: *Catalogue of the Sparta Museum* (with M. N. Tod), *Prehistoric Thessaly* (with M. S. Thompson), *Nomads of the Balkans*, *Chamber Tombs at Mycenae*, *Mycenae* (an archaeological history), and a notable series of catalogues of Near Eastern and Mediterranean embroideries, a field in which Wace was recognized as a world authority. In his years in Rome he had contributed substantially to the catalogues of ancient sculpture in the municipal collections which were then being prepared by the British School, and his inaugural lecture at Cambridge, *An Approach to Greek Sculpture*, represented a return to this early interest. He did not

live to see the completion of the *Companion to Homeric Studies*, a joint effort in which he had taken a leading part for some years before his death.

Wide though Wace's interests were, more than half of his long life was dominated by a single passion—Mycenae—single, but infinitely rich. Wace knew Mycenae as no man before him had known the place and as no one can hope to know it again. Added to his own long years of digging was the knowledge of the antiquities gained from close personal acquaintance with those who had dug there before him, especially Chr. Tsountas. Wace looked on Mycenae not merely with the eyes of the archaeologist; the Homeric references and the scenes in Greek tragedy that centred here were as real to him as the walls and the palace on the hilltop. And another essential element in his view of Mycenae was the natural setting: the fragrance of the hillsides, the ever changing colors of mountain, plain and sea, the never changing ways of pastoral life.

The study of Mycenae itself was a rewarding theme. Wace made it infinitely richer by his demonstration of the leading role played by Mycenaean architects in the design of fortifications and tombs and by his elucidation of its commercial and cultural contacts with the rest of the Near East, above all with Crete. After long years of strife with Evans and the other adherents of the Pan-Minoan school, he was happy to see his view of the relations between the mainland and the island so largely confirmed by the decipherment of Linear B in 1953. He himself had long before come to believe that the language of the tablets written in this script and found both on the mainland and at Knossos would prove to be an early form of Greek. When this point was confirmed by the decipherment, Wace was quick to emphasize the broadening of our vista not only of the development of the Greek language but also of Greek religion, art and ways of thought.

Wace's publications, both the records of his own discoveries and his acute interpretations of archaeological evidence, will be of lasting importance in the history of classical scholarship. But his contemporaries have been doubly fortunate in profiting from direct association. Those who worked with him found him an ever helpful and most stimulating colleague, while thousands more who constituted his lecture audiences will long cherish memories of his vivid interpretation of a fascinating period in the world's history.

HOMER A. THOMPSON

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BOOK REVIEWS

JUNGBRONZEZEITLICHE HORTFUNDE DER SÜDZONE DES NORDISCHEN KREISES (PERIODE V), by Ernst Srockhoff. Römisch-Germanisches Zentralmuseum zu Mainz, Katalog 16. Vols. 2, pp. xi + 454, figs. 65, pls. 76, maps 53. Verlag des Römisch-Germanischen Zentralmuseums, Mainz, 1956.

The regional development of the Late Bronze cultures of the North German plain has been the subject of much controversy. The problem is accentuated by the nature of the materials, the relative scarcity of good settlement finds and the comparative rarity of rich graves such as the "Royal Grave" of Seddin, in contrast to the abundance of *Hortfunde* (hoards). Here Ernst Srockhoff, well known for his use of hoard finds in the study of trade, utilizes them for an analysis of cultural development during the Late Bronze Age (Period V).

The basis for his study is a group of 285 hoards, ranging from single objects such as the hanging vessel found at Berlin-Charlottenburg in 1733 to complex finds such as the hoard from Biesenbrow in Kreis Angermünde, where a large bronze kettle, found in the course of ploughing a field, contained a small hanging vessel, fibulae, armbands, a neck collar, a neck ring and twelve convex bronze disks used as harness ornaments. Fortunately a number of the hoards are closed finds, such as the one from Biesenbrow. A number were found in bronze vessels, in pottery jars or small stone cists, while others consisted of a closely packed group of objects, suggesting they had been wrapped together before burial.

Srockhoff rightly emphasizes the geographic setting of his finds, the fact that over a third of them were found on moist moorland, many in open fields, and only a few near Late Bronze Age settlements and cemeteries. He warns that it is difficult to determine the purpose of the hoards except when the material is found near settlements or cemeteries.

The first major section of the book consists of a detailed catalogue of the hoards which lists the contents of each and gives the circumstances of its discovery and publication. Although the distribution map in Vol. II (Karte 53) has a symbol for hoards found in moors or moist areas, a more detailed study of geographic setting through the use of maps might be desired. The failure to indicate the province or state in which each hoard was found will make the book difficult to use by those not acquainted with the specific location of north German counties.

The largest portion of the work is devoted to *Formenkunde*, the typological study of the objects found in the hoards. The study begins with weapons and tools. Strong Urnfield influence in northern Germany is indicated by the Möriger, Auvernier and Antennae swords and by the helmets and shields. Northern development may be seen in the *Nierenknauf*,

Griffzungen- and *Griffangelschwerter* as well as in the lance and dagger types. There are long discussions of axe types, such as the northern, northwest European and Lausitz socketed axes, and the winged and shaft-hole axes deriving from south central Europe and Hungary. Knives are treated in terms of northern and Urnfield types. Considerable attention is paid to jewelry, neck collars and rings, arm and leg ornaments, fibulae, straight pins and pendants. This section, in which the author discusses the origin, distribution, chronology and cultural affinities of each type of object, concludes with metal vessels, harness and other metalwork whose function is difficult to interpret. These studies of types, which are dealt with along traditional lines, with the dating (to judge from occasional statements) brought into line with the chronologies of Holste and Vogt for southern Germany and Switzerland, are supported by excellent distribution maps and illustrations in the second volume.

The summary and conclusions are brief. Srockhoff divides his material into regional cultural groups, noting the rise of the Ems-Weser and Middle Elbe groups in northwest Germany and the appearance of new groups in eastern Germany along the Oder and at the mouth of the Vistula. He points out without extensive discussion the strong influence of northwest Europe (British Isles) upon the Ems-Weser group and the Scandinavian affinities of most of the Holstein finds. He emphasizes the influence of the Urnfield cultures of southern Germany but notes that those influences were rapidly assimilated on the north German plain. In the east he shows that the coastal areas of the Oder and Vistula groups had strong Scandinavian affinities, while the inland areas fell under Lausitz influence. Nevertheless a certain northern unity is guaranteed by the distribution of the northern *Griffangelschwert* and hanging vessel everywhere except in the Ems-Weser region and the inland areas under Lausitz influence.

This regional division of the cultures of north Germany upon the basis of the distribution of types found in the hoards is secured by a careful distinction between pure Scandinavian northern types and North German northern types, and between pure Urnfield types and Urnfield types as transformed on the north German plain. The suggestion is made that while Urnfield influence was strong upon the weapons and toilet gear of the warrior and extended even to the acceptance of religious motifs such as the *Vogelsonnenbarke* theme, the jewelry was essentially in the northern tradition, with only a few foreign types. The impact of foreign cultures was absorbed in northern Germany, but not without bringing a transformation of culture marked by rich finds comparable, for the first time, to those of Bronze Age Denmark and Sweden.

These volumes will be useful mainly to archaeologists with a considerable grasp of the prehistory of northern Europe. In this magnificently printed and

edited work Sprockhoff has limited himself to the hoards of the north German plain and their interpretation. Nevertheless a brief survey of the broader relationships of these materials, particularly in respect to Period VI and the subsequent Iron Age, would have been desirable.

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A HITTITE CEMETERY AT GORDION, by *Machteld J. Mellink*. Pp. xii + 60, pls. 30. The University Museum, Philadelphia, 1956. \$2.50.

The excavations of the University of Pennsylvania at Gordion, the Phrygian capital, in west-central Anatolia have brought to light as one of their most interesting by-products a cemetery of the Hittite period. Because of the scanty evidence of this sort for the period, particularly in the west, the 34 graves reported in this monograph have an importance far beyond their small number. The analysis of their character and contents has yielded valuable archaeological information, despite the scarcity of grave goods and the serious disturbance of many graves from above, first by Phrygian settlers and then successively by Phrygian, Lydian and Roman tombs. On the basis of what comparative material is available, Miss Mellink succeeds in giving the cemetery a tentative chronological range from the time of the Assyrian colonies into that of the Old Hittite kingdom.

The cemetery continues practices already attested for Western Anatolia in the third millennium; it is extramural, the bodies are buried in a contracted position and the types of burial preferred are inhumations, cist-graves and pithos-graves. In general the heads of the bodies do not point to the northern half of the compass, those in the pithos burials in particular being almost invariably to the southeast. On the other hand, further east in Anatolia intramural burial is common and regularity in orienting the body neglected; while an extended position of the body occurs quite frequently in the second millennium. There is no trace in the Hittite cemetery at Gordion of the practice of incineration which is elsewhere attested in the period.

The inhumations of the cemetery are closely grouped together in the southern part. Their grave goods, insofar as they are closely datable, suggest a time perhaps as early as the Assyrian colonies. The plain pithoi lie to the north of the inhumations or amongst them. In this case the dating evidence is meager; but, by what indications there are, these burials should not be much later than the inhumations, if at all. The pithoi of cooking-pot fabric were mostly found just northeast of the inhumations; they too are probably of about the same date as the latter, or slightly later. The same may hold for the few, widely scattered small cooking pot pithoi with child burials. The cist graves are too few and too sparsely furnished to be

significant. Last comes the important group of ribbed pithoi; these were found among the other burials and to the north and northeast. Position, character and content suggest, though not conclusively, that as a group they are the latest graves in the cemetery.

From one of the ribbed pithoi, H 41, came a necklace, parts of which are among the most interesting objects from the cemetery: namely a stamp seal of Hittite character, three pendants of a type known from other parts of the Near East in the second millennium, and five amulets in the shape of a pair of Hittite shoes. The latter are unique, but all are important additions to our repertory of distinctive objects from datable contexts. The same may be said of a paste stamp seal with pseudo-hieroglyphic signs found in the child burial H 4.

One of the most valuable features of the report is the concluding discussion of Hittite archaeology and comparative chronology. The author ably defends the use of the term "Hittite" for the relatively homogeneous archaeological material from Anatolia of the second millennium. She also makes the brilliant suggestion that the more general term "Anatolian" with divisions Early, Middle and Late, should be used: "Early Anatolian" to replace what is often called the "Copper Age," Middle and Late to subdivide the Hittite period. Such terminology would parallel that for the "Bronze Age" elsewhere.

Finally one word of criticism. The reader's task would have been made much simpler if the graves had been renumbered according to the order in which they are presented. Otherwise it is a pleasure to commend this admirable report.

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THE SCYTHIANS, by *Tamara Talbot Rice*. Pp. 255, pls. 24, text ills. 70. Thames and Hudson, London, 1957.

Nothing proves an interest in the arts of the migration periods more conclusively than the simultaneous publication of Dagny Carter's *Symbol of the Beast* in New York and of this volume in London. Although the title of the latter may seem to indicate a limitation in space and time, Mrs. Rice uses the Scythians only as a beginning and follows their "legacy" deep into the history of Chinese and Germanic art. Her animated descriptions of objects are clearly based on visual experience. The book could thus be used as a guide to the understanding of an insufficiently known art realm, if it did not contain some serious errors. They are too obvious to require reference to authoritative literature.

Right at the start (p. 37), one must object to the assumption that painted pottery of the Susa and Sialk types existed in the Siberian steppes. The curved bronze knives of the Karasuk phase at Minussinsk are

related to Shang China, not to Chou (p. 38). The Hiung-nu, also known as the Huns, could not have been driven away from the Chinese border around 800 B.C. (p. 43), since they replaced the equally unpleasant Yüe chi only at the beginning of the second century B.C. and left for the West during the second century A.D. Mrs. Rice's imagination runs away with her when she describes the drinking of an enemy's blood by the warrior "in the presence of the governor and a crowd of . . . spectators" (p. 54), because she fails to bridge the gap in time between battle-kill and the later ceremony. The most serious mistake, however, one of about 1,000 years, concerns the origin of the stone statues of human beings holding cups in front of their abdomens and commonly called "Kamennie Babi" (p. 68). They were not invented by the Scythians, who erected only portrait sculptures of warriors, but by the Turks. Thus they cannot antedate the seventh century A.D. Finally, since Rostovtzeff and Borovka were not successful in connecting the image of the Chinese dragon with models in the Middle East, Mrs. Rice should not have accepted their long-rejected theory (p. 195).

The reviewer regrets having to point out faults in a book which is written with a refreshing and contagious enthusiasm.

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FESTSCHRIFT FÜR CARL WEICKERT, ed. by *Gerda Bruns*. Pp. 159, ill. Gebr. Mann Verlag, Berlin, 1955.

The contents of this pleasantly illustrated little volume are not only symptomatic of the interests of their authors; they also reflect the span of research and responsibilities which over the years guided the work and occupied the cares of the friend so honoured. E. Boehringer wrote the dedication and explained the order in which the fourteen contributions have been arranged. For the purpose of this brief review, in order to facilitate the reader's acquaintance with the volume, a different sequence according to subject matters will, however, seem more practical. It shall be adopted in the following.

1. Oriental and early Greek art. K. Bittel collected the extant fragments of Hittite ceramics decorated with figured reliefs (pp. 23ff). The list is small but interesting. It suggests a development or at least a continuous use of this type of ceramics from the early Hittite period onward. A so far unknown specimen from Selimli, figs. 1-6, illustrates the latest phase dating approximately to the 13th century B.C. On the last named fragment, the chief representation shows a hunter between two enormous stags. The animals are antithetically arranged, without baselines; the hunter in the middle wears Hittite costume, including the braided lock of hair falling down his back. The forms

of the animals herald a style of approaching geometrization.

H. Diepolder's discussion of a "Frauenkopfamphora" from the Agora concerns the formative stage of the Attic black-figured style (pp. 111ff). It also sheds new light on the delicate drawing which decorates the amphora in Munich, of identical type but quite different execution (fig. 1). More convincing, therefore, than the author's cautiously offered suggestion that both heads be attributed to the Nessos-painter, proves to be their comparison with contemporary Attic sculpture. The new fragment from the Agora parallels the New York "Kouros"; the head on the Munich amphora can be compared to the large "Kouros" I, from Sunion. Resulting dates: approximately 620-610 B.C. for the amphora from the Agora, a date shortly after 600 for the amphora in Munich.

Third in this section is an article by E. Kunze which very circumspectly presents the evidence regarding a recent find from Olympia, a fragment of a Corinthian helmet (pp. 7ff). Result: the helmet very probably commemorates the younger Miltiades' conquest of Lemnos, shortly after 500 B.C. It therefore represents the only Attic dedication before the classical period thus far known from Olympia.

2. Greek Classical art. W. H. Schuchhardt brings an interesting problem of Roman copies to the fore, centering on the unusual early classical head in the Chiaramonti Museum, which L. Curtius not so long ago ascribed to Pythagoras (pp. 55ff). But the new comparisons will hardly decide the case, either. In fact, there seems to be a serious question whether these various heads, or types of heads, are related at all to each other, beyond the obvious fact that all sport long hair gathered more or less artfully in the back. Stylistically they seem rather different. The heads of the type Chiaramonti (figs. 1-4) possess a very characteristic trait, namely, the curiously abstract curve which leads from ear to chin in one uninterrupted sweep. A comparison of profiles will show that this quite special way of outlining the cheeks had early antecedents in Attic art, harking back to archaic works even as far as the Dipylon head and the New York Kouros. None of the other types treated in this article exhibits the same peculiarity. Actually the structural dissimilarities among these heads are sufficiently telling, and sufficiently basic, to force us to dissolve the group into a chronological sequence. The type of the Chiaramonti head—male rather than female—must be placed at the beginning of the early classical style, still near the Tyrannicides: shortly before or after 470 B.C. With the head of the peplos statue at Candia, figs. 7-10, the underlying formal structure is much more angular, indeed cubic; if seen in front view the broad chalice of the lower face appears surmounted by the regular triangle of the forehead, framed by descending masses of hair. The general stylistic level approximates the Olympia sculptures and may be dated accordingly, ca. 460-450 B.C. Moreover, in this case the structural difference seems to signify more than a merely chrono-

logical development. The heads of the Candia type simply are no relations of the Chiaramonti Apollo-head, though they are related to other earlier sculptures, e.g. the Kore of Euthydikos. The type of the Lansdowne (*not* Lansdowne) head in New York, figs. 11-14, poses a different problem, hardly solved as yet. Instead of building up formal divisions, as between lower face and forehead, the heads of this type follow a concept of continuous roundness. A curving, three-dimensional shape forms their structural core. This type is difficult to date. Most current estimates seem too high, including the one recently proposed by G. M. A. Richter, "Catalogue of Greek Sculptures" (Cambridge, Mass., 1954) pp. 21f, no. 26 (not yet accessible to the author). On the whole the structural analysis points to an original after, rather than before, 450 B.C. The specific style of the prototype has yet to be determined but contrary to the prevailing opinions, it must certainly be differentiated from both the Candia and the Chiaramonti heads.

The second essay in this category, by E. Buschor, entitled "The Naturalness of Greek Sculpture," deals with a variety of utterances by Goethe on Greek art (pp. 75ff). It would obviously be unfair to treat this as a methodical investigation which it does not claim to be; even so, one must doubt that many readers will feel truly instructed by it. Yet this is to be regretted, for the topic itself is of more than ordinary interest. The trouble is that Goethe's terms which are usually very consistent and used with a more literal precision of meaning than modern readers often realize, for this very reason require study and clarification. This semantic-philological task is only too rarely performed. In the present case there seems to emerge from the documents assembled a notion dimly grasped at first, growing to consistent insight between September 1787 and January 1788, that Greek art was not a mere "Abglanz der Natur" or as we might say, not a naturalistic art by primary intention. Goethe thus came to think of that art not merely as a formal rationalization of given natural facts such as anatomy but as an art of created forms, a man-made world of nature which therefore was not "nature" at all. Needless to say that these were new and important observations. Equally important would it be to understand that in this evaluation of Greek art one faces a conscious opposition to the then prevailing scientific classicism, which was so often caught in the vicious circle of deriving the perfection of art from nature, while at the same time arguing the perfection of nature on the strength of existing art. In this sense, Goethe's reappraisal of Greek art was a "romantic" venture, on a level with the equally realistic and romantic emphasis on the deep rooted primitivism from which Greek intellectualism grew and on which it constantly fed.

3. Greek History and Epigraphy. G. Klaffenbach investigates crucial passages of three Greek inscriptions (pp. 93ff). M. Gelzer discusses the meaning of "pragmatic" history in Polybius (pp. 87ff): firsthand acquaintance with geography and the practical con-

ditions of political action are the principal prerequisites of the "pragmatic" historian.

4. Roman Art and Iconography. To the small list of surviving fragments of ancient cult images, G. Kaschnitz-Weinberg in agreement with an earlier statement by K. Lehmann, adds a large marble head at Lanuvium which he explains plausibly as a representation of Juno Sospita (pp. 11ff). The head, once covered by a goat skin equipped with horns and ears of bronze, can with near certainty be assigned to the local temple of the Goddess. Stylistically it seems of rather conventional type, and may be part of a renovation under the emperor Hadrian or his immediate successors.

In a comprehensive iconographical study, "Belli Facies et Triumphus," F. Matz pursues the theme of the "Subdued Centaur" (pp. 41ff). In the original Greek story the Centaurs were conquered by Hercules. Accordingly, in art, they draw his chariot. Only later variations show fettered centaurs also in other contexts. A multitude of useful observations are included with this investigation. In two instances, however, the evidence would seem to suggest a different conclusion, at least to this reader. The maenad from the so-called Villa of Cicero who treats a captive Centaur so ungentle may not herself have put the fetters on him, but being a creature from the realm of Bacchus, she still is best understood as instigating the helpless brute to those wild frenzies which properly are her element. She therefore uses her thyrsus as Lyssa her sting, or Eros his whip. The metaphor is in keeping with Hellenistic thought as exemplified by the Capitoline statues (author, pp. 54f). Also, the centaurs once in the collection of Asinius Pollio, by Arkesilaos, who reportedly carried "nymphs" on their backs, have a claim to be considered in the same category.

The memory of Hercules need not enter any of the aforementioned cases. It is even less called for in the interpretation of the ancient literary passages which deal with the lost painting of Apelles, cited in the title of the article (pp. 52f; p. 56 and no. 37). Apparently in this composition which later came to be exhibited in the Forum of Augustus, Alexander was seen in his victorious "komos," in a chariot; hence, "triumphans." There was also a male figure with hands bound behind its back and perhaps seated, if the description of Servius can be trusted, who mentions the place of the painting but not the artist. At least by the time of Augustus this character was named an "image of war." This much we can assume, not only because Vergil describes a similar figure as locked up in the Temple of Janus. The fettered "image of war" was quite in keeping with the ideological program of the Forum itself, the patron deity of which, Mars "the Avenger," by its very surname proclaimed the end of the civil strife. At any event, the ancient descriptions suggest a chained or fettered figure of a man, as Benvenuto Cellini also understood it (cf. this writer in "Corolla L. Curtius," Stuttgart 1937, text, pp. 212f

and no. 4). There is no hint of a centaur or centaurs; how the "Polemos" in chains was related to Alexander's chariot compositionally, we cannot know.

5. History of Architecture. This is the largest section, numerically comprising five articles. A noticeable characteristic of these contributions is their tendency to interpret architectural facts speculatively, in psychological or generally cultural terms. The above statement of course does not apply to F. Krauss' investigation of measurements in the "Basilica" of Paestum (pp. 99ff). It is true, to a greater or lesser degree, of the four remaining articles. Thus, the essay by W. Andrae which deals with early religious architecture of the Near East, proposes to explain the variable relations between the entrances and main axes of rectangular buildings as expressions of distinct forms of religious experience (pp. 81ff). It is difficult to pass judgment on these conclusions, as they can hardly be supported by contemporary documents. But the directions according to prevailing directions in architectural interiors are certainly fundamental and convincing. This fact is also confirmed by the findings of G. Bruns who based her discussion of Greek architectural interiors on the same methodical principle (pp. 137f). Here, again, the results appear generally valid even though the interpretation sometimes leans on romantic modernisms, as in the highly hypothetical reconstruction of the pre-supposed, Mycenaean court ceremonial (pp. 142ff). Most valuable is her demonstration that two forms of Greek public architecture so different as temple and city-hall may nevertheless represent modifications of a common prototype, the ancient megaron. Insofar as with both types the interior arrangement relates to a center or focal point, both differ radically from buildings like the Telesterion of Eleusis, where the supports are also set at regular intervals but without a compelling emphasis on any single direction. The latter principle really incorporates a different concept of spatial composition, which had a long history in Eastern and Moslem art. In the mosque of Cordova the columns form patterns and open vistas, straight or diagonal as the case may be, depending on the way the visitor prefers to read their directions as he moves along in the building. These patterns seem to repeat each other endlessly at all sides; they are neither subordinated to a predominant direction, nor related to a common focus. As in atonal music, each member has equal value. Each column becomes a potential starting point as well as center, of a continually repeated composition as the ever renewed, never related, configurations of space form and dissolve around the path of the observer.

A new contribution to the symbolical interpretation of domes in late classical architecture is due to E. Langlotz, who suggests that the ciborium-like canopies over the altar in Graeco-Oriental sanctuaries may have caused the construction of domes on pendentives (pp. 35ff). The last paper to be mentioned in this section, by H. J. Lenzen, deals with the fusion of

Classical and Oriental elements in Parthian architecture at the time of the Roman Empire (pp. 121ff).

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PHIDIASISCHE RELIEFS UND PARTHENONFRIES, by *Carl Blümel*. Deutsche Akademie der Wissenschaften zu Berlin. Schriften der Sektion für Altertumswissenschaft 10. Pp. 33, pls. 30. Akademie-Verlag Berlin, 1957, broch. DM 7, 80, bound DM 9, 50.

In this pamphlet the author demonstrates, as in a public lecture, with good reproductions of well known pictures, the development of perspective drawing on Greek vases and reliefs. According to him, the friezes of the Thescion (as he calls it) show no foreshortening; each figure is isolated. The same is true of four slabs of the frieze of Athena Nike (b,c,e,o) which he holds were made soon after 448. Each of these slabs is filled with a self-contained composition. This also holds for the frieze of the Temple by the Ilissos, where, however, the indications of the terrain are more numerous. The "isolating" composition of these three Attic friezes culminates in the Erechtheion frieze, where all figures are executed separately and affixed to the background. But this is only one group of Attic frieze-reliefs, mainly from the forties of the fifth century.

Another group shows a different type of composition. This group consists of a marble lekythos (Conze, No. 1073; in Blümel's description of the seated woman, for "left" read "right"), the grave-relief of Mynno and the Parthenon frieze, where the figures are conceived not like free sculptures, but more like a painting. The author states—as others have done before—that it can be proved that the east and west sides of the frieze were executed first, and not at the temple but in the work-shop, while the long sides were made later on the temple itself. In the Parthenon frieze the single figure means nothing; it vanishes completely in the agitated context.

To this group belong other slabs of the Nike-frieze (l,m) which, he believes, were created later, namely about 420; in these there is foreshortening, there is no artificial separation into groups and no limitation of the movement by the ends of each slab. On the Neo-Attic copies of the shield-reliefs of Athena Parthenos we have, as in the first group, no overlapping and no foreshortening. The same is assumed for the reliefs on the bases of the Athena Parthenos and of the Zeus in Olympia, for those on Athena's sandals and for the Niobids on the throne of Zeus, the Amazons on the foot-stool, etc. The differing principles of composition between these two groups, B. holds, are decisive. He concludes that since these subsidiary reliefs must be regarded as part of the overall design of the statues by Phidias, the pediments and frieze could not possibly have been designed by him.

This line of reasoning will be familiar to those who know Blümel's earlier works (*Zwei Strömungen* [1924] and *Jahrbuch* 65-66 [1950-55] 1 pp. 135-165). In many cases sentences and paragraphs, if not whole pages are repeated *verbatim*. Other ideas, once merely implied, are now stated explicitly.

In this popular essay, written without any footnotes, the author could not, of course, give a full account of his reasons and proofs. It is to be hoped that he later will find an opportunity to do so and to answer at the same time some questions which may bother some of his readers, e.g.: if, according to him, the two styles of composition in the Nike frieze cannot be contemporary, and if, therefore, we have to assume two periods separated by a quarter of a century (which, by the way, reminds one somehow of Buschor's Mausoleum)—would we not have to make the same assumption for the Parthenon frieze? There, as the author admits (p. 19), isolated figures are present, though overlapping is the rule. How can we explain the fact that Phidias, acting as general supervisor on the Acropolis, did not take any part in the frieze and the pediments? And what about the metopes? They are not mentioned at all. Are we really so sure about the character of the relief style, say of the sandals of Athena Parthenos or on the basis of Zeus? Can we trust the Piraeus reliefs so much more than the Strangford shield that we must rule out overlapping in the shield-composition? Are we even sure that the shield-reliefs are by Phidias himself? Was Phidias really too old to accept a relief technique with overlapping, which, after all, was already in use on the frieze of the Siphnian treasury? Who of his pupils was the great man who designed the Parthenon frieze and pediments?

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DREI BRONZEN DER SAMMLUNG HELÈNE STATHATOS,
by *Emil Kunze*. 109. Winckelmannsprogramm
der Archäologischen Gesellschaft zu Berlin, 1953.
Pp. 40, figs. 12, pls. 7. Walter de Gruyter & Co.
D.M. 28.

It should be explained at the outset that this booklet was only recently sent to the reviewer, having been held up through a number of circumstances. Apologies are therefore due to author and publisher for the delay.

The three bronzes selected by Dr. Kunze for detailed discussion in this *Winckelmannsprogramm* are an archaic ram bearer, a fifth-century standing youth, and a fifth-century doe. They rank among the best in Mrs. Stathatos' famous collection and are indeed worthy of detailed presentation. But the text gives much more than three essays on outstanding works of art. Through comparisons with many contemporary and related pieces, ranging from the second half of the

sixth to the end of the fifth century, and the discussion of problems connected with them, Kunze's brochure assumes the character of a general introduction to Greek bronze statuettes, equal in importance to Neugebauer's, Langlotz's, and Jantzen's books.

The archaic ram bearer, wearing pointed hat and short chiton, belongs to the same class as the two bronze statuettes in Boston, 04.6 and 99.489, illustrated in figs. 1-4. Kunze would date the Stathatos example c. 530, contemporary with the "mature Exekias"; Boston 04.6 perhaps a decade or so later; and the Boston Hermes, 99.489, the finest of them all, at the end of the sixth century. The theme is of course familiar, the earliest example being the marble *kriophoros* of Thasos. When the figure wears winged shoes, as does Boston 99.489, it must represent Hermes; otherwise he may be a mortal, a shepherd bringing his offering to the deity, like many of the little Arcadian bronzes of this general period. The Stathatos bronze has lost its feet and the attribute it held in the right hand, so one cannot be sure what its function was.

Dr. Kunze calls attention to a number of unusual features in the Stathatos bronze, abnormalities which have aroused suspicion of authenticity; for instance, the rendering of the beard, which ends like a wing in the region of the ear, instead of connecting with the hair at the temples; the design of the beard, with strands converging to a point at the bottom and leaving a smooth triangular area beneath the lower lip; the incisions for the eyebrows as contrasted with the plastic renderings in the Boston bronzes; and the curious projections, apparently meaningless, at the outer end of the sleeve-seam. Perhaps more important than such details is a curious stiffness, both in the ram and in the man. Nevertheless Kunze decides in favor of authenticity, and coming from so experienced a judge, who moreover has had the opportunity of examining the surface (always an important factor), this opinion not only carries weight, but should be decisive. As he says, more significant than the little variations from the norm is the fact that the style is throughout consistent; no late renderings are combined with early ones, as is almost invariably the case in modern imitations.

Regarding the stance, with right foot a little advanced instead of the left, Kunze suggests that perhaps the figure was part of a group, like *Dermys* and *Kitylos*, where one figure advances the right, the other the left leg (*Kleobis* and *Biton*, however, both advance the left). But that appears, to me at least, not likely, because, though there may have been pairs of *korai* (p. 8), I cannot recall pairs of votaries among the many extant bronzes, including especially the Arcadian shepherds. The slight deviation from absolute frontality, which is cited by Kunze as another argument for a companion, might easily have been dictated by the manner in which the ram is held—with the arm placed much further back than in the Boston bronzes—and so necessitating a certain twist of the body.

The second bronze, the standing youth, resembles Polykleitan figures, but is in a somewhat different pose. The rendering of the front hair by striations and the slightly formalized folds of the mantle are still in the early classical manner, but the easy stance places the statuette after the middle of the fifth century, as Kunze rightly says. The curious paw-like projection rising obliquely upward from the vertex of the skull might suggest that the statuette served as the support of something; but it is difficult to think what that something could have been. Even Kunze has no explanation.

Kunze cites for comparison many other bronzes of the second half of the fifth century B.C., both in the Polykleitan and in other schemes, and in eloquent terms describes the wealth of motifs in the standing figure during that period—in statues, reliefs, statuettes, vase-paintings, coin types, etc. Nevertheless, in discussing the lampbearer from the Via dell' Abbondanza of Pompeii, the youth from Volumnilis, and the Idolino (p. 15 and note 39), he agrees with Rumpf (*Cr. d' Arte*, 1939, pp. 17ff) that they are "classicistic" variations created in Roman times of the same Greek original. But is it not more likely that each of these statues was copied from a different Greek original, since stylistically all belong to the fifth century when—just as in the preceding sixth—the same general type, subtly varied, appears again and again? Of the Idolino and the Pompeian youth replicas are known. Would that not in itself indicate that each reproduces a separate Greek original? Or must one now envisage replicas of pasticci?

It may be noted that Kunze in his discussions of all these figures follows the prevalent trend in believing that one can assign single pieces to a large number of specific "schools"; but, as is so often the case in such attempts, his attributions generally differ from those made by others.

Another important problem on which Kunze touches (note 68) is whether the fine Polykleitan statuette in the Louvre, no. 183, is an original or a Roman copy. One might pose a similar question—and with more confidence—regarding the famous "Beneventum" head in the Louvre (said by its former owner, Count Tyszkiewicz, in *Rev. Arch.* [1895] II, pp. 276ff, to have come from Herculaneum). Such questions, as we all know, are exceedingly difficult to decide, and much more so with bronzes than with marbles, because of the manner in which the bronze copies were made. Instead of being produced like the marble copies by the laborious pointing process, in which there necessarily was a certain leeway, the bronze copies were cast from moulds taken from the originals and were therefore exact, except for the final chasing of hair strands, etc. This would explain the different opinions regarding such masterpieces as the Idolino, considered to be an original by so eminent a connoisseur as Furtwängler, but now recognized as a Roman copy.

The third Stathatos bronze is a doe quietly standing, with head raised and ears erect, as if listening. Kunze

dates it around the middle of the fifth century (or could it be a decade or so later?), somewhat earlier than the equally fine bronze doe from Sybaris in the Louvre. The Stathatos doe is another superb example from a period that was already famous for its animal sculpture even in antiquity.

Since Mrs. Stathatos with rare generosity has donated her collection to her country, the three bronzes so expertly described and discussed by Kunze are now exhibited with her other treasures in the National Museum of Athens.

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SMALL OBJECTS FROM THE PNYX: II, by Lucy Talcott, Barbara Philippaki, G. Roger Edwards, Virginia R. Grace. *Hesperia: Supplement X.* Pp. ix + 189, figs. in text 7, chart 1, collotype plates 80. Princeton, 1956. \$7.50.

Love and patience are the cardinal virtues of those who undertake present-day publication of excavation material, especially of material churned in discard heaps and building fills. To the uninitiated, the maternal concern lavished upon the wayward and disfigured, as well as upon the normal and prepossessing, can seem faintly ridiculous, if not pathetic. The initiate, however, knows the reward of cherishing waifs and strays. Their aggregate importance is impressive and, paradoxically, the waif is usually more informative about pedigree than the aristocrat in a marble-halled museum. The reconstructed genealogy of Hellenistic art, in particular, will owe much to these humble sources.

For the stemmata of such a Debrett the excavations of the Athenian Agora and of the nearby Pnyx Hill have, over the years, contributed much information. Careful digging and careful analysis have given breadth and depth to our knowledge of a period which, in the desperation of ignorance, has been lumped in terms of centuries rather than in the tidy decades of the classical age. The volume under consideration, presenting pottery from the Pnyx, is the second (and concluding) installment in the publication of objects found during the investigations on the hill in the 1930's. The interval since the first volume (reviewed in *AJA* 48 [1944] 311-312) has been used to advantage, as mentioned in the Foreword, to correlate information accruing in the Agora. In some instances, however, fuller discussion is reserved for the publication of more extensive material from the market-place. The book is divided into three parts: "Figured Pottery" by Miss Talcott and Miss Philippaki; "Hellenistic Pottery" by Mr. Edwards; "Stamped Wine Jar Fragments" by Miss Grace. Each section follows the scheme of a summarizing introduction preceding a catalogue which harbors the more detailed discussion and bibliography. Nearly every piece included in the

selective publication is illustrated and it is easy to work back from pictorial to written description (a habit of research from which few are immune).

Most of the figured pottery is red-figure belonging to the first half of the fourth century. It is the pre-Hellenistic Attic ware which, in its more elegant export version, once gained the name "Kerch." The coarse grade, proclaiming local manufacture, is occasionally offset by fragments of the more elaborate style. Chronology is relative and admittedly subjective, since there is as yet little evidence to help; for stylistic criteria in this matter, indebtedness to Sir John Beazley is expressed. However modest the fragments, it is important to have good illustrations available for study. Some of the scraps offer incidental information which is of more than passing interest and the authors have taken the trouble to delve into the details—as, for example, in the discussion of the *psithyra* and six-stringed cithera which appear on Fragments Nos. 212-213.

Nearly all of the fragments in Mr. Edwards' section are from "Megarian" bowls so popular throughout the Hellenistic world. Here again the waifs and strays are informative and much of the introductory discussion is devoted to technical considerations indicated by the finds. Most important are the numerous pieces of molds which reinforce the evidence for Athenian manufacture of one of the better-made styles of a class that was produced in more than one place. The discovery of test pieces is further proof of local manufacture. Also interesting is the unusual quantity of impressions originating from the same molds. For chronology, the material from the Pnyx does not contradict the more copious evidence from the Agora; this, according to Mr. Edwards, will show that the manufacture of "Megarian" bowls in Athens began around the middle of the third century (a very slightly earlier date seemed probable when the excavations were still new). Subject matter and style are, on the whole, familiar for their category, but there are some new elements. Of particular interest is the Athena on Fragment No. 1; she may be a newcomer to the repertory of "Megarian" bowls, but she is an old friend in the world of Roman lamps (cf. the brief discussion in H. Goldman, *Excavations at Gözü Kule, Tarsus I, The Hellenistic and Roman Periods*, p. 125, no. 341); if she is the Promachos, it is good to see her at home and closer in time to her original appearance.

Miss Grace's conscientious work on stamped wine jars, which has led her through devious paths of weights and measures, economics, trade, and other facets of ancient life, is not only furthered but focussed here. Because a surprising variety is represented in the stamps found on the Pnyx (clearly, the Athenians enjoyed diversity when filling their wine-cups), her introduction to the catalogue offers a succinct, up-to-date compilation of commentary and bibliography on the subject. In chronological matters the amphora handles fare better than their companions; certain groups, on evidence available from the Pnyx, can now be separated as pre-Hellenistic. The illustrations, as is

Miss Grace's practice, are reproduced at a uniform scale; their clarity makes them particularly useful to those less experienced in sphragistics who wish to identify their finds. Indices and concordances add to the value of the section as a reference work. It is in this chapter that one realizes most vividly the astonishing amount of knowledge that can be gleaned from cast-offs, if only one will use perseverance and intelligence and more than a dash of imagination. The waifs and strays "pay off."

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TERRACOTTA FIGURINES FROM KOURION IN CYPRUS,
by John Howard Young and Suzanne Halstead Young. Museum Monographs, The University Museum, University of Pennsylvania. Pp. 260, figs. 17, plans 3, pls. 74. Philadelphia, 1955. \$5.50.

This publication of the terracotta figurines that were discovered by the University Museum in campaigns from 1934 to 1948 is most properly dedicated to George H. McFadden, who was primarily responsible for the excavations. This young man, who was known to only a few archaeologists in Cyprus and Philadelphia, dedicated his life until his early death in 1953 to the exploration of the town of Kourion in all its periods. Benefactor of the excavation, he would undoubtedly have also seen to it, had he lived, that the publication was worthy of its contents. But the system of private patronage is unreliable and the cost of publication in this country has reached such a point that this volume does honor neither to McFadden nor to its equally devoted authors.

Once the reader has adjusted his spectacles to the crabbed offset printing and has focussed his magnifying glass on the dull pictures, he will find that this shabby-looking book is in many ways a remarkable volume. It encompasses over 3000 figurines, odd bits of stone sculpture, pottery and lamps and a few metal miscellanies. It will be, obviously, most useful to specialists seeking for evidence from excavated material. But it is not merely a catalogue of the rather ugly works of ancient Cypriote villagers. Certain of its contributions have already been assessed by this reviewer (AJP 67 [1956] 301ff). The chronology has in general been endorsed by an authority on Cypriote affairs, Einar Gjerstad (*Gnomon* 29 [1957] 248ff). We might consider here the interest to the general archaeologist, who is not a Cypriote excavator, but a teacher and a scholar. What useful material is offered, even though it come from an out-of-the-way corner of the world?

At first glance, the quality of the material is forbidding. The coroplasts of Kourion had absolutely no artistic sense, no feeling for scale, no understanding of fundamental plastic principles. They were boors. But just this very fact should serve as a warning and

a clarification of the condition of affairs in obscure corners of the world that spoke Greek, yet were not Hellenes. Moreover, these votives should clarify our understanding of the ordinary productions that the ancient villagers bought at festival time; they are no better than those available nowadays in Greek lands on the saints' similar festivals.

The figurines came from two votive deposits which had been dumped out from the sanctuary of Apollo Hylates not far from the city of Kourion. Unfortunately, these deposits showed no stratification, but they did overlap somewhat in date. The earlier dump was found in an archaic precinct in front of the temple itself; its contents indicate that it was cast out about 480 B.C. The second deposit was found in a bothros constructed at a date in the period around A.D. 100. These two deposits, then, offer evidence for a wide range of time and styles. The appalling fact is that the styles changed very little all through those centuries.

As we turn the plates, we can see, in fact, uniformity and conservatism above all else. How is it possible to date these standardized faces, these handmade bodies that seem to represent a caricature of the Communists of our imagination? It is the technique with which the authors reduced this rabble to an organized and comprehensible community that makes the publication valuable. Undaunted by the overwhelming task, they attacked some ten thousand fragments by as sound laboratory techniques as is possible in our inexact science.

The innumerable handmade specimens would seem to be utterly recalcitrant. How could they be dated? We have only to glance at the series of drawings showing the blood lines of the horses, the fashions of cap and costume, the typology of chariots to realize that even among these crude figures the laws of stylistic development still hold. By considering all the possible evidence—context, cross-references, parallels—the authors have worked out sequences that appear to be reasonable and to hold true from archaic into Roman times. We could wish that they had had an artist do the drawings, but perhaps the very crudity of the sketches is more honest than the work of a draughtsman. More significant even than these series are the mold sequences which the authors have worked out in detail. In the last quarter of the sixth century B.C., the Near Eastern technique of making the head of a figurine in a mold, which was attached to a handmade body, finally reached Kourion. These molds were few in number and were eternally repeated for some four hundred years. They can therefore be traced, from fresh early casts to the dullest descendants and then on from generation to generation. The ingenious and industrious authors thus worked out a long history for each mold type, like the die sequences which reveal so much to the numismatists. Luckily for the Youngs, the coroplasts of Kourion were remarkably lazy. Rather than create a new type, they would copy an old one indefinitely or seize on a totally irrelevant head of Pan or of a woman from a foreign figurine to clap

unblushing upon the wee bodies of their horsemen. When the horsemen carry a shield bearing the horrific head of Medusa, the two mold types can be cross-checked, thus enlarging the cross-references. Patiently, with tiny calipers, the Youngs sorted out the generations, the cousins, the families, which they have presented by large photographs, mold by mold. This method has enabled them to compress the huge company into a few classes so that the logic, the order, and the relative chronology can easily be understood.

The relative chronology is not to be disputed; what can we learn, however, about the absolute dating of this mass of material? Undoubtedly, after handling these figurines for so many years, the Youngs acquired a "feeling" for their chronology. Naturally, we cannot demand that the evidence for dating each piece be given in detail. But we should, in certain cases, as has already been pointed out by Gjerstad, have enjoyed examining the evidence for ourselves. For instance, on page 18, seven figurines are listed as coming from consistent contexts of definite dates, but not one of these dated pieces appears upon the plates. Battered though they may be, they are fundamental documents in the whole fabric, which the reader would appreciate being able to see with his own eyes. On pp. 77f a series is given which the authors date on stylistic grounds. This is admittedly dangerous ground, for we have not yet been able to agree on stylistic chronology, particularly in the Hellenistic period. Personally, I feel that several of the authors' datings on these headings are unsatisfactory. I should be inclined to place Mold 14, like Mold 12 A (See *AJP* p. 306), in the third century.

For the absolute dating, comparative evidence could have been more freely used. Probably the authors had to dig so deep into the Cypriote, even just the Kourion scene, that they had no time and no eyes for other material. But it is actually just those pieces that can be related to the outside world that are most interesting to the ordinary reader. A few comments on such examples of general interest might suggest the sort of interrelations prevalent in the Hellenistic *koine*:

No. 1023, pl. 67 Draped Woman. This type does not seem to be exactly like the one cited in Winter, *Typenkatalog*, II, p. 875, which wears an himation drawn over a chiton. The Kourion figure appears to wear only one garment, which is drawn up high above the ankles. This indicates that it is male, for women do not wear the himation in this particular fashion. Nor is it likely that this figurine would represent any specific person. It is a pity, as Gjerstad also points out, that the authors follow Pryce's eccentric notions on this subject (Cf. *AJA* 59 [1955] 205, note 69).

No. 1012, pl. 17 Head of a Child. This large head belongs to a class that was widely popular during the late Hellenistic period. Close parallels can be found in Alexandria (Breccia, *Monuments de l'Égypte*

te gréco-romaine II,2, pl. LXXX, 415-418), in Syria (Chehab, *Terres cuites de Karayeb*, pls. xc, xcii, 2), in Asia Minor (Pottier and Reinach, *Nécropole de Myrina*, pl. xvi), from Delos (Laumonier, *Délos* xxii, pl. 94, no. 1235) and even, in bronze, in South Arabia (Segall, *AJA* 59 [1955], pls. 56-57).

These few examples indicate that Cyprus, even in the modest world of the coroplasts, was in touch with the great outside world. To the student of Hellenistic history, then, the material is a storehouse for checking and studying the trends among the commoner arts and crafts of the day.

On technical matters also the book is stimulating. Certain queries arise from the evidence of so many pieces from one mold. For example, how can we explain the fact that several markedly different clays were employed for nos. 1004-1007, all made in the same mold? Is it not possible that the habit of making figurines of certain sizes, such as a foot, a half foot, etc., may make the exact measurements of two faces not necessarily an indication that they were made in the same mold? Further, does the apparent long life of one mold, sometimes extending over as much as a hundred years, not suggest that many molds were taken from one archetype, not all at the same time? The forthcoming volume by Judith Perlzweig on the Lamps of the Roman Period from the Athenian Agora will offer interesting evidence on this matter. But if true, it means that all heads from the same generation of the same mold are not necessarily contemporary physically, though they certainly are stylistically. How, then, are archaeologists to "date" terracottas—by the date of the creation of the mold or of the production of the piece? This question has recently been brought into focus also by material from the Athenian Agora. In Athens, too, have been found from dated contexts three hundred years apart, figurines which are identical in type but not directly related by a steadily diminishing line of descent such as appears at Kourion (*Hesperia* 21 [1952] 132).

The Kourion material reveals how many hidden interrelations can be discerned if the surviving specimens are sufficiently abundant. R. V. Nicholls has already indicated the possibilities among archaic Attic terracottas (*BSA* 47 [1952] 217ff). Clairève Grandjouan will present similar series among Attic figurines of the Roman period (forthcoming publication of the terracottas from the Athenian Agora). The Youngs are here the first to publish a sufficiently large body of material to establish the value of the study of mold sequences. Perhaps courageous scholars will now attack other large bodies of unpublished figurines, such as those from Tarentum or Tanagra, along the lines laid down by these pioneers. We must be ever grateful to those who blazed a trail through one of the darkest regions in the obscure shadows of classical antiquity.

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TARQUINII III-IV: LE Pitture degli Auguri e del Pulcinella, by Giovanni Becatti and Filippo Magi. *Monumenti della pittura antica scoperti in Italia, sezione prima, la pittura etrusca*. Pp. 42, pls. 16, figs. 21. Istituto poliografico dello stato (libreria dello stato), Rome, 1955.

Ancient painting must be studied in three places where alone a sufficient number and variety of examples are concentrated: Naples and environs; Rome, a province in its own right if less rich in extant specimens; and the Etruscan tombs, especially those of Tarquinia. The importance, in this situation, of a project like the Italian "Monumenti della pittura antica" is obvious; it is gratifying to report that with the present issue, after the long pause imposed by the war, publication has been resumed. A painting is a thing of color, and the critical study of ancient painting, especially, owing to the comparative rarity of examples preserved, has come into its own only with the invention of modern color photography. There is no need here for pointing out once more that even the best color photograph is a surrogate, not to be trusted rashly, and never truly like its original. Yet accepting a modicum of change in texture and light intensity as inevitable, one will judge the color reproductions included in the present folder remarkably successful. Indeed this reviewer, upon examination on the spot, found them extraordinarily faithful to the originals. Moreover they are supported by a sufficient number of well printed, ordinary photographs, as well as reproductions of copies illustrating the earlier condition of the paintings which, like all other Etruscan tombs, are unfortunately subject to rapid changes of preservation. For the latter reason, also, it is much to be desired that the series be continued without delay. Its large, generously selected and competently printed plates possess a documentary value, quite aside from their importance as a publication of source material. Their contribution to knowledge must be rated very high. In conjunction with the older set of Hermann-Bruckmann's "Denkmäler" they have already become a fundamental instrument of research in the field of ancient painting.

The texts share this function. The volume before the reviewer deals with two monuments at once, the tombs called "of the Augurs" and "of the Punchinello." It follows the previously established division between factual description, interpretation of subject-matter, and stylistic criticism. Each monument is treated separately, which seems sensible because aside from the intriguing character of "Phersu," appearing in both, the two tombs really have not much in common. According to the preface the topographical and descriptive parts are due to Magi, the rest to Becatti.

The descriptions, very detailed, will be found most useful. A common difficulty in describing Etruscan representations of actual events arises from the vagueness of our knowledge of Etruscan dress. It appears

that a special study of Etruscan costume will be needed in order to give us a better understanding of sartorial peculiarities such as the lasting Italian preference for curving hemlines in all sorts of garments; and concomitantly, help us develop a nomenclature somewhat more to the point than such current expressions as "giubetto" for a short chiton (cf. also A. Rumpf, *AJA* 60 [1956] 75). Another item in this category is the broad colored stripes along the edges of "himatia" which thus appear "praetexta," sported by both men and women in the archaic tombs. Examples: the two mourners in the rear and especially the two umpires in the right wall of the tomb of the Augurs. The "napetta" (p. 8) falling from the left shoulder of the last named certainly poses a question, not yet answered sufficiently. Likewise, questions of stylistic criticism and representational conventions cannot always be separated from the factual descriptions. Thus one may doubt that the running "Phersu" in the left wall of the same tomb is really seen from his back (p. 11). The explanation fits the representation of the hands but not the beard, which can only fall across the chest. Obviously this character does not live up to the exigencies of modern naturalistic reasoning. Instead, it complies with an abstracted formula of representations denoting "man looking back while running forward." The case resembles that of the boxer, discussed by R. Bianchi Bandinelli, *Le pitture delle tombe arcaiche* (Monumenti della pittura antica, Clusium, fasc. I, Rome 1939) 24f and fig. 23 (in the Tomb of the Monkey).

The Tomb of the Augurs is a remarkable monument, and with this new publication at hand its place in the history of art can now be defined much more confidently. Not only is the quality of the paintings exceptionally good but, to our knowledge, they incorporate two important innovations. One concerns subject matter. Mythology which was tentatively employed in the Tomb of the Bulls has been discarded and replaced by representations from life, namely, events in honor of the dead. The other innovation concerns arrangement. In the Tomb of the Augurs there appears, for the first time fully developed, the architectural scheme of decoration which from then on remained standard practice for a long time. The walls are divided into four clearly distinguished parts: dado, wall frieze, entablature of striped bands, and pediments. The figured frieze above the architrave, which also had been tried out in the Tomb of the Bulls, was omitted. On monuments still accessible to us, it will not reappear before the Tomb of the Chariots.

The events in honor of the dead include a scene of lamentation and funeral games; these points were made quite clear by the authors. A slight touch of unreality results from the painted door which, by implication, pictorially transforms the interior of the tomb into a place before the tomb—as if the dead were still outside and part of the world where all these things happen, devised to please them. The banqueters and merry dancers remembered from so many other tombs

are still absent, but we know from the Bologna *situlae* and related monuments that funeral games, banquets and processions were all interlocking ideas (I. Scott Ryberg, *Rites of the State Religion in Roman Art*, *MAAR* 22 [1955] 6ff). The inclusion with the imagery of the tombs, of these additional elements, must have come as the next logical step. Processions do not seem to occur among the archaic tomb paintings but the frequent dances may be part of the banquets with which they are often combined, though the line between reality and fancy is not always firmly drawn in these representations. At any rate in the Tomb of the Augurs aside, perhaps, from the imputed change of locale, the character of reality was strictly maintained. The two mourners—"ploratores"—are real and as their titles indicate, indeed professional people (p. 14). I should add that the dark color of their cloaks probably denotes mourning, also in accordance with actual custom, as we know it from the Roman "toga pulla." The athletes and their overseers are real, the latter again with titles inscribed (p. 15). It follows that the two "Phersu," likewise identified by inscriptions, must be real as well. The name, occurring twice in the same context, cannot be personal. As both wear an almost identical mask combined with a conical cap, one may agree with the authors that a "Phersu" was a character with a mask (pp. 16f), or possibly with a certain type of mask; there could be several of them in the game, just as there can be any number of clowns in a modern circus. Some evidence can be adduced that originally these characters belonged to the realm of Persephone, and that in fact they represented the dead, spooks at large for the occasion; see now also J. H. Croon, *JHS* 75 (1955) 15f. It becomes clear, further, that they could be seen in quite different functions. One stages the cruel fight between the blindfolded man and the fierce dog, another derides the runner who cannot catch up with him; the one in the tomb of the Punchinello may well be dancing (p. 38). The "Phersu" emerge from this study as fearsome beings, but one also senses an element of mockery in them, as befits ghosts.

The paintings in the Tomb of the Punchinello can hardly be read in their context any more, too much having been destroyed. It seems that they likewise represented games, adding, however, performers on horseback and, perhaps, dancers. A lamentation was shown in the rear wall, and it appears a good suggestion that there, to the left where the lower part of the wall is now quite empty, the funeral couch had once been placed. It would supply the object to which the lamentation addressed itself (p. 37).

The concluding chapters on the style and chronology of both monuments naturally reflect the common difficulty of assigning plausible dates to the archaic Etruscan tombs within the span of approximately sixty or seventy years which can be allotted to them (pp. 20ff, 39ff). The discussion must rely entirely on stylistic observations and circumstantial evidence. Fortunately the arguments are as yet far from exhausted. Again in

this connection the Tomb of the Augurs proves its exceptional character. Among the Etruscan tombs we know, it gives the first evidence of a well understood, consciously cultivated, monumental style of wallpainting. In this respect, also, the Tomb of the Bulls reveals its more tentative and preparatory character.¹ Consequently the origin, antecedents and connections of the new monumental style present a question of quite unusual interest. The Caeretan hydriae have a bearing on the question, as pointed out by the authors; perhaps the Loeb tripods must not be wholly dismissed, either (p. 27). But especially, I should add to the list of "comparanda" the tomb of Belenkli (Akurgal, *Griechische Reliefs des VI. Jahrhunderts aus Lykien* [Berlin 1941] 52ff); and, of course, the recently discovered fragments of wallpaintings from Gordion (*AJA* 60 [1956] 255ff and pls. 85f, figs. 19, 20, 21) not yet known at the time when the present volume was in preparation.

Comparison with the reliefs from Belenkli is especially rewarding, not only for stylistic but also for iconographic reasons. The Lycian tomb combines scenes of war, hunt and games, probably for commemorative purposes not associated with thoughts of afterlife or funeral ceremonies. Even so it is interesting to observe that two of these themes, hunt and games, occur in the Etruscan tombs also. In the reliefs of Belenkli the games show musicians, boxers and an antithetical group of wrestlers with a vase—the prize—between them. The similarity of the latter to the Tomb of the Augurs regarding both style and composition is obvious; the stylistic relations to the Caeretan hydriae were already noted by Akurgal (roof).

If such are the premises, what conclusions shall we draw from them? Obviously a style which left traces in such distant localities cannot be regarded as if it were merely an Italian development. For the general history of art we shall have to book this as another "international style." Secondly, direct contacts between its Italian manifestations on the one side and the Lycian and Phrygian monuments on the other must be considered improbable. More likely one is confronted with reflections of a style which radiated from a common center to outlying regions, in opposite directions. This center, certainly Ionian-Greek, must so far go unnamed; Phocaea remains a possibility. In Italy, Caere may well have been the regional center of distribution, as it also was the home of the closely related hydriae. But there is no reason to assume that any one city had a monopoly on this style. Itinerant artists may have carried it to other towns as happened not infrequently in Etruria; cf. T. Dohrn, *Die schwarzfigurigen etruskischen Vasen aus der zweiten Hälfte des sechsten Jahrhunderts* (Berlin 1937) 142.

The evidence on all counts rather favors the date suggested by the authors for the Tomb of the Augurs, ca. 540-530 B.C. (pp. 28f). One can also agree with

¹ See also the recent study by L. Banti, "Problemi della pittura arcaica Etrusca: La tomba dei tori a Tarquinia," *SIE* 24 (1955/56) 143ff, suggesting a date in 530-520 B.C., for the

their insistence that the Tomb of Punchinello exhibits a different and later style and should be assigned, approximately, to the level of the Tomb of Hunting and Fishing; after, not before, the Tomb of the Lionesses (p. 42). But, as the latter can hardly find its place before 520-510, it would seem wiser to retain the date to the last decade of the century previously ascribed to the Tomb of Hunting and Fishing, by Romanelli (differently, authors, *l.c.*). The magnificently flattened out figures of the Tomb of the Lionesses, rather monumental in effect though some are actually quite small, still seem indebted to the same "international style" as the Augurs. But they show it in a later phase. On the other hand a considerable degree of agreement exists between the Tomb of the Augurs and the newly found fragments from Gordion. This comes to the fore, not only in the profiles of the faces but also in the design and spacing of details, such as mouths and eyes. It is to be regretted that the Tomb of the Augurs does not represent a single female figure which would permit an even closer comparison. Yet for the time being, this is where the case must rest. It may not be irrelevant, however, to point out that the starlike pattern representing the eyelashes, both with the Gordion fragments and the wrestlers of the Tomb of the Augurs, was in similar fashion also used in contemporary Etruscan bronzes, e.g. by the artist of the Loeb tripods (M. Pallottino and H. and J. Jucker, *Art of the Etruscans* [London 1955] pls. 52f).

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A HISTORICAL COMMENTARY ON POLYBIUS. Vol. I, Commentary on Books I-VI, by F. W. Walbank. Pp. xxvii + 776. Oxford, Clarendon Press, 1957.

This, the first of two volumes, covers Books 1-6. No text is given. The author used the text of Buechner-Wobst for the *lemmata*; the notes indicate the places where he believes that another reading is to be preferred. He has sensibly assumed that many users of his book will follow him with translations and has offered good corrections in many places for the better-known translations.

The introduction aims to introduce the commentary rather than to give a summary discussion of all aspects of the man and his work. The author remarks in the preface that he tried to remember that he was writing a commentary rather than a history. He succeeded remarkably well in keeping his rich offerings of information and judgments relevant to the text; yet in some places the successive entries of the commentary necessarily are almost like a continuous piece of history.

As part of his attempt to stick to the questions raised

Tomb of the Bulls. I still incline to the earlier date, before the Tomb of the Augurs, chiefly for reasons of the relative chronology among the tombs.

by the text he resolved to exclude discussion of the later influence of Polybius. This rule excludes, for instance, discussion of later theorizing on the *mikte* and on the Roman constitution. Perhaps there would have been something to be said for admitting some reference to modern theory on historical causation, or on contingency in relation to *Tyche*.

If the rule also excludes any general discussion of Livy's relation to Polybius, the materials useful for the formation of a sound opinion on this subject will be found in dozens of entries in the commentary, ready to be used by those interested in Livy. The materials for other generalizations have been left in their places in the commentary rather than summarized at some point, for example, those relating to the over-schematization of the Roman constitution. Likewise no discussion is given of the theory of stratification of texts; but in many of the notes Walbank plainly shows the grounds on which his conservative position on this question is based.

The specialist will take pleasure in using this commentary. It cannot be said to lean to any point of view except that of strong common sense. Where there is a controversy the author states the question, refers to the literature on both sides, gives the present consensus of opinion if there is one, and often gives a judgment of his own.

It is a rich commentary. A great amount of illustrative material, which rarely lacks full pertinence, is brought in. The documentation is excellent. The style wears remarkably well; it is crisp without the wearisome quality of telegraphic brevity.

This work might well be useful to some scholars who would not ordinarily think of using it. The popularity of courses in Greek literature in translation sometimes makes it necessary for classical scholars who do not specialize in history or even for members of English departments to deal with Polybius' discussion of the Roman constitution. Those who find themselves so faced with the necessity of teaching part of an author whom they do not know intimately might profit from working intensively through pages 635-746.

Our thanks are due to the author and his publisher, not only because this book was written and published, but also because it was written and published on the generous scale necessary for its fullest usefulness.

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CORPUS INSCRIPTIONUM ET MONUMENTORUM RELIGI-
ONIS MITHRIACAE, by M. J. Vermaseren (text in
English). Pp. xiv + 366, pls. 115. Martinus Nij-
hoff, The Hague, 1956. Cloth. Guilders 85.

More than fifty years have elapsed since Cumont published his great work *Texts et Monuments relatifs aux mystères de Mithra*, which founded the fame of

this great scholar. Since then many important monuments and inscriptions have come to light and much has been written on Mithraism. Therefore a new up-to-date collection of all pertinent materials is very welcome. The author is known by several writings on Mithra, especially his book on the cults of Mithra in Rome (1951, in Dutch). The title indicates that the literary texts are not included, although they may have a place in a *Corpus* and it would be convenient to have them collected, but that does not much matter because they are well known and not very numerous.

Under the title of the book is a star, signifying that it is the first part of the volume. It comprises Asia, Syria, Aegyptus, Africa, Italia, Hispania, Britannia, Gallia, Germania, the Roman provinces east of it, and the Balkan peninsula including Greece, are reserved for a second part. The author explains this in his foreword (p. ix) saying: "It was hoped that peace would bring opportunities for a more thorough study of the monuments in Germany and the Balkans, but this hope has not been fulfilled." It is to be hoped that it will not be too long a time until it is possible to pursue the studies and complete the work with the second part. For important discoveries have been made in these countries, e.g. in Germany the cult relief from Dieburg. Greece rejected Mithra. The only monument is an altar, found at Piraeus, with a dedication to Helios and Mithra; the other two monuments found there have inscriptions in Latin.

The book is difficult to review, for it is a catalogue. It comprises 1,002 numbers, with indications of finding-places, literature, and descriptions. The monuments are pictured on good autotype plates comprising 238 figures. In the text are inserted plans and reconstructions of the discovered Mithraea and before each section is a sketch map showing the finding places, useful for judging the spread of Mithraism in the various countries. The work is done well and conscientiously, e.g. the Mithraeum at Dura-Europos is fully described and all inscriptions reprinted. Italy and especially Rome take up far the largest place, 168 pages of 286.

The author registers the famous relief from Isbarta in Pisidia as No. 25, but states rightly that it represents Nike killing a bull, not Mithra. On the other hand, he omits the coins of Trapezus referring to Mithra, noted by Cumont, *loc. cit.* ii, p. 190. I have expressed my doubts that the inscription No. 15 refers to Mithraism in my *Gesch. d. griech. Religion*, p. 644, n. 2. The discovery of a Latin dedication to Mithra near Colophon, a new testimony of the aversion of the Greeks to Mithra, came too late to be noticed (see *Annuaire du Collège de France* [1956] 299; the text is not given). One of the reliefs of the bull-killing Mithra found at Si in the Hauran is listed as No. 88 but not the other, unless, perhaps, it is No. 89; both are mentioned by D. Sourdel, *Les cultes du Hauran à l'époque romaine* (1952) 93. The Mithraeum at Fajum, mentioned in a papyrus of the third century B.C., is not recorded, and rightly so, for it is only known through

a text and it is so early that it cannot have anything to do with the mysteries (see my *Gesch. etc.* ii, p. 642, n. 9). As to Africa, see now also M. Leglay, *Les religions orientales dans l'Afrique ancienne* (1956) 29ff.

A copious bibliography comprising 42 pages is added. The author cannot have read all these writings. A reader who wants to find St. Wikander, *Études sur les mystères de Mithras* i (Lund 1950) will be puzzled, thinking that it is the first part of a great work; in fact it is a paper printed in the *Yearbook of the New Society of Letters at Lund* (1950). It advances the incredible hypothesis that the mysteries of Mithra originated in the Balkans. The book by the same author, *Feuerpriester in Kleinasien und Iran* (*Acta soc. human. litt. Lund. XL*) (1946) is not cited, probably because of the title; it contains a good critical treatment of the Persian cults in Asia Minor, including the alleged Mithraic monuments. An important paper by Nock, "The Genius of Mithraism," *JRS* 27 (1937) and another by Cumont, "St. George and Mithra 'the Cattle Thief,'" *ibid.*, are missing.

Copious and very useful indices are added. The book will be indispensable to all serious students of one of the most remarkable and most discussed religions of the Roman Empire.

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LA DÉCOUVERTE DU LAOCOON (Reprint from *Mededelingen der Koninklijke Nederlandse Akademie van Wetenschappen, Afd. Letterkunde. Nieuwe Reeks, Deel 18, No. 12*, pp. 291-308), by C. C. van Essen. Pp. 18, fig. 1. Amsterdam, N. V. Noord-Hollandsche Uitgevers Maatschappij, 1955.

It is almost generally accepted that the group of the Laocoön was found in Room 80 of the Domus Aurea, as first asserted by F. Weege (*Jdl* 28 [1913] 229ff = *Goldenes Haus des Nero*, 103f) and last by A. von Salis (*Antike und Renaissance* [1947] 136ff). The author tries to disprove this theory by assembling all the documents relative to the discovery of the group in chronological sequence. He wants to locate the true place in a room northeast of the Sette Sale, in the vigna of Felice de Freddi, which, however, cannot be located exactly. He therefore designates his own theory as aimless (*gratuite*), and he believes that we shall never surpass this phase of uncertainty.

The reviewer believes that the engraving by Marco Dente (H. Thode, *Die Antiken in den Stichen Marcantonis*, pl. 1. A. v. Salis, *op.cit.*, fig. 376; M. Bieber, *The Sculpture of the Hellenistic Age*, fig. 532) might lead to a solution. The author mentions the fact that, although the engraving was created in the last years of the life of Marco Dente (died 1527), it may be based on an earlier drawing made directly after the group was found in 1506. This engraving has an egg and dart molding at the height of the breast of the

father, above the string course of the dado, which runs behind the heads of the sons. If such a room could be found, we would have found the room in which the Laocoön stood, before and when it was discovered. The egg and dart is, of course, frequently used, thus, for example, as a border for the pictures on the *volta dorata*, the ceiling of room 60 of the Golden House (Weege, in *Jdl*, 172f, figs. 16 and 18, pls. 7-8), while in room 80 the border has a leaf pattern (*op.cit.* p. 219, fig. 66).

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SEVERISCHES RELIEF IN PALAZZO SACCHETTI, by Ludwig Budde. Deutsches Archäologisches Institut, Achtzehntes Ergänzungsheft. Pp. viii + 72, figs. 68, pls. 15. Berlin, W. de Gruyter and Co., 1955. DM. 24.

A somewhat damaged historical relief walled up in the courtyard of the Palazzo Sacchetti in Rome forms the subject of this extensively illustrated, short monograph. The relief has been written about in the past, notably in an early essay of the late A. J. B. Wace (*BSR* 4 [1907] 227ff, esp. 263), and it taxes the ingenuity of the present author to squeeze enough material for a monograph from its marble. At least there is no question that the relief is Severan, that Septimius Severus and his family appear therein, and that the scene commemorates an imperial proclamation in Rome at the turn of the third century or later. This is much more than one usually has to go on with such reliefs.

Of the sixteen figures remaining, only eight still have heads. In addition, the author sees the relief as a sufferer from the dynastic chisellings which befell the arch of the Argentarii and the arch in the Forum Romanum; he indicates that the figure of a spearbearing guard at the front left corner of the *suggestus* was removed when other alterations were made. It is the doubt about some of the eight missing heads (were they removed in antiquity or were they damaged in the Middle Ages?) which enables construction of a chronology for the relief in the first decade of its existence. According to B., the relief showed Septimius Severus (seated) addressing Senators in the Forum (arch of Titus at the left, imperial palace behind) in connection with one of the events following the *Sacra Saecularia* of A.D. 204, most likely Caracalla's and Geta's joint Consulship, beginning January 1, 205. The Prefect Plautianus (father-in-law to Caracalla) stood between the spearbearer and Septimius; Caracalla (head remaining) looms between them in the background. The official party is completed by the jurist-statesman Aemilius Papianus at the right, and young Geta was beyond, at the corner.

The past tense is used with purpose here, because within a few months C. Fulvius Plautianus fell from

favor and was put to death; accordingly his head (and, perhaps clumsily, the spearbearer) disappeared from the relief. Perhaps a Senator or so went on this occasion. The next assault on the relief was after the murder of Geta early in A.D. 212; his head suffered, and presumably so did those of one or two Senators of his party. The remaining mutilation belongs to time and ignorance; only Caracalla and Papinianus (not wicked enough to be decapitated when he fell) remain substantially as they were when the relief was carved.

This reconstruction of the fate of the relief is imaginative but plausible. Surely the blank spot of the spearbearer indicates some chiselling, and we have the horrible conditions of the arch of the Argentarii or the Berlin painted tondo (recently, F. W. Goethert, *Festschrift B. Schweitzer*, 361ff) as testimony that the Romans placed artistic *damnatio* above aesthetic considerations. B.'s identification of Caracalla (rather than Geta) as the young man behind Septimius Severus is based on his extensive studies of the youthful portraits of the two princes (*Jugendbildnisse des Caracalla und Geta* [Münster 1951] esp. 14f, where, however, Caracalla was identified as perhaps a Genius). But it is difficult to tie the rest of the damage in with history; most of the mutilated figures are, quite naturally, those in the highest planes of the relief. And while the politicians may have sliced heads freely, only time can account for extensive destruction to the feet of principals and spectators in the relief.

There is one piece of evidence which may call B.'s arrangement of the figures on the *suggestus* into question. Early drawings of the Sacchetti relief are few, but there are two of the late sixteenth and early seventeenth centuries in the Dal Pozzo-Albani albums at Windsor Castle (*Catalogue*, nos. 8336, 8733). Both these sketches attempt to complete or restore the relief; both show the seated figure as a younger, beardless man. They also show "Geta" with a beard, and the older and more accurate of the two drawings (no. 8336) is clear about presenting "Plautianus" in a similar manner. This may be artists' fancy, but the draughtsmen may have seen more heads on the relief than there are now. Many other instances in Renaissance drawings of ancient monuments support this type of speculation. If there were more to the relief in the sixteenth century, before it reached its present location (or if the artists copied an older sketch), then it might be possible to suggest another arrangement of the principals on the *suggestus*. The youthful seated *togatus* is Caracalla, being presented to the Senate by his father; Geta is behind, and Plautianus is the headless figure at the extreme right. The occasion could still be Caracalla's (and Geta's) Consulship of January 1, 205 (a few weeks before Plautianus met his fate). Or, following the evidence of the drawings, Geta is the seated prince. The proportions of the figures mean little in separating youths from men, since "Papinianus" is as dumpy as B.'s young Geta. If one followed B.'s notion that "Caracalla" is a Genius (Populi Romani?), then "Plautianus" is the *Genius Senatus*,

Caracalla is seated, and Septimius Severus or Geta stands at the right. Or perhaps the thoroughly effaced spearbearer was Geta as *Princeps Iuuentutis*. There are several possible combinations.

In the realm of Severan art as a whole B.'s offering contributes little that is new. Aside from publishing the Sacchetti relief in separate covers, the most useful aspect is perhaps good photographic publication of the handsome late Severan fragments (from a funerary monument?) in the Museo Nuovo Capitolino and the old Antiquario on the Celian (pls. 11-15). The reviewer has given reasons in this journal why the fragment of a procession in the Boncompagni-Ludovisi collection of the Museo Nazionale Romano (pls. 8f) belongs not in the Severan period but to the lost *arcus divi Veri* on or close to the Appian Way near the Baths of Caracalla (*AJA* 61 [1957] 243f, esp. note 157; also *Gnomon* 29 [1957] 372). Mrs. Ryberg has studied B.'s other Severan candidate (pl. 10) with her customary thoroughness and has concluded rightly that the pertinent section of the relief with sacrifice of two bovine victims, in the Louvre, belongs to a monument of the last years of Marcus Aurelius or the first years of Commodus (*MAAR* 22 [1955] 158f, fig. 87). The upper central part of this relief in its present, pieced-together condition (and lost sections known from Renaissance drawings) may have formed part of the same arch from which came the Ludovisi relief, mentioned above.

There are scattered bits of state reliefs which will find a place in a thorough study of Severan historical sculpture; B.'s dedication to Rodenwaldt is as far as he goes in the interrelation of sarcophagi with state monuments and portraiture. Several good illustrations point up the importance of the many and varied Severan coin reverses, from mints all over the empire (e.g. figs. 24, 68). In connection with the architecture in the background of the Sacchetti relief, one may add D. F. Brown's discussion of the little window with its late antique arched lintel, *AJA* 46 (1942) 389ff.

An age that saw the arch in the Forum Romanum (A.D. 202/03), the arch at Lepcis Magna (probably 203), the arch of the Argentarii (204), and the Sacchetti relief (presumably 205) produced in so short a span is almost without parallel in earlier periods. A comprehensive monograph, embracing several manifestations of the arts (like J. M. C. Toynbee's *The Hadrianic School*), is needed; J. B. Ward Perkins, "The Art of the Severan Age in the Light of Tripolitanian Discoveries," *ProcBritAc* 37 (1951) 269-304, shows the possibilities. The name of E. C. Olsen should appear on p. vii of B.'s offering, among those who have made contributions to Severan studies, for, if his great work on the arch in the Forum remains unpublished in the American Academy in Rome, at least the amazing photographic details, which B. (figs. 5f, 24, 29ff, etc.) and others have published freely, perpetuate the memory of his preparations.

CORNELIUS VERMEULE

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THE BRONZE VESSELS IN THE RIJKSMUSEUM G. M. KAM AT NIJMEGEN, by *Maria H. P. den Boesterd*. Pp. xxxi + 90, pls. 18, text illustrations 5. Rijksmuseum G. M. Kam, Nijmegen, 1956. 10 guilders.

Any archaeologist who has been privileged to visit the Rijksmuseum G. M. Kam at Nijmegen will have come away filled with an admiration not untainted with envy of the fine assemblage of Roman material displayed there. The distinctive pottery of local manufacture, the glass and the various stone monuments each attract attention in their turn, but, above all, it is the great collection of bronzes of every description—statuettes, fibulae, lamps, the great head probably representing the Emperor Trajan found in the River Waal and the numerous jugs and bowls—which is the most overwhelming feature. Some of these objects have already been discussed in the earlier catalogues published by the Rijksmuseum G. M. Kam, and this new publication describing the bronze vessels is assured of a warm welcome from scholars.

The bronze vessels mostly come from Nijmegen itself or its immediate vicinity but, as so often happens with durable objects of this type, the exact location of the finds is known in only a few cases and many of them appear to have been dredged up from the bottom of the river. Such vessels must usually have been among the more luxurious purchases of a Roman household; they remained in use for a long time and the more worn examples have frequently been repaired in antiquity. Often handed down as heirlooms, even when they are found in undisturbed grave groups associated with such datable objects as coins, pottery and glass, they must be treated with a certain caution, and Miss den Boesterd warns us at the beginning of her introduction that her material provides little opportunity for exact dating; although some chronological evidence is available for the discoveries from the cemeteries excavated near Nijmegen and from several sites which formed part of the civilian settlement of *Ulpia Noviomagus* which flourished from about A.D. 70 to A.D. 270. So when dating of the bronze vessels is attempted, it is largely based upon a comparative study of material from other sites, still subject to the distinction between the time when the objects were manufactured and the long period during which they remained in use. It is this comparative study which makes the Catalogue so valuable to the student. The widespread trade in glass, metal objects and certain types of pottery is one of the most useful means the archaeologist has when he is trying to work out the chronology of a Roman site anywhere in the Empire; but this advantage has been largely offset by the consequent need for an endless, time-absorbing search through countless publications in various languages for comparative material. Now that every European country is producing a steadily increasing volume of archaeological evidence we are at last beginning to get more works of reference which study

a limited number of objects against a wider background, and for research of this kind the collections of a Museum well-endowed with whatever material is under discussion are peculiarly suitable. When we look at the list of authorities consulted by Miss den Boesterd for the book under review we find an eight-page bibliography of works in eight different languages, a far wider range than any individual excavator who, in addition to his bronze objects may also have to write reports on the pottery, glass, iron work, building materials, mosaics or wall-paintings from his site, can be expected to study. So for the trefoil-mouthed jug no. 232 probably made in Southern Italy in the first century A.D. we are given comparative material from Pompeii and Herculaneum, Hungary, Germany, Belgium, England, and even Denmark; and the bronze pans of Gaulish manufacture, nos. 25-29, are compared with discoveries made in Hungary, Germany, Denmark, Switzerland and England.

When we turn from these more general considerations to examine the detailed catalogue we are struck by the early date of some of this Nijmegen material. It includes strainers and a jug which may be of Etruscan manufacture and the escutcheon from a bucket with Greek parallels, all probably dating from the fifth or fourth centuries B.C., while a bucket of Hallstatt type may be of sixth century date. In some cases their provenance is uncertain and the question arises whether they were indeed found near Nijmegen or whether they represent later antiquarian purchases, but the presence of similar material of early date in other countries encourages us to believe that they could indeed have been found locally. Then we have thirty-five complete or fragmentary examples of the deep bowls with long handles usually described (in English) as "saucepans." They vary quite considerably in craftsmanship and decoration and presumably gained this name because of their resemblance to modern kitchen utensils. At first sight it is difficult to believe that they were not used for cooking, but, so far as I know, no bronze vessels of this type have been found bearing signs of burning, blackening, repairs, or other evidence of domestic ill usage and most authorities will agree with Miss den Boesterd's suggestion that they were used almost invariably for the serving of wine. The less decorative long-handled bronze pans with shallower bowls and flatter bottoms sometimes found in other collections may have been used by the cook in their stead.

In the same way the various types of long-handled dippers and strainers may also have belonged to the wine service but the bowl, no. 64, with its spout originally fitted with a strainer, probably had a more intimate household use and it is suggested that it may have been employed for straining herbal concoctions. Then there are the numerous buckets including representations of the well-known Hemmoor type, one (no. 146) decorated with a fine frieze in relief showing a hunting scene, and also three very small buckets (nos. 156-58) which may have been children's toys. Other unusual

finds include a bowl (no. 186) with handles in the shape of a dolphin, which are reminiscent of the handles sometimes used to decorate Roman chests and caskets (Liversidge, *Furniture in Roman Britain* [1955] 61) and a fine fluted bowl (no. 196) comparable in shape to one of the silver bowls found in the Mildenhall Treasure, with handles decorated with escutcheons in the form of sitting birds and female heads. Another bowl (no. 198) with a rim with beaded decoration in repoussé technique, a shallow oval dish (no. 199) with handles and incised decoration and several jugs, are all types which were copied in pewter in fourth century Britain when bronze imports were no longer easily obtainable. The jugs and jug handles include several examples with interesting detail in relief. Among them may be mentioned no. 276 with a bird on an altar and a griffin sitting on a base engraved with crisscross lines; this surely suggests a cage of the type prominent among the hunting scenes on the mosaics from the Sicilian villa of Piazza Armerina, but there the cage contains a man (Gentili, *La Villa Romana di Piazza Armerina [Itinerari dei Musei e Monumenti d'Italia]* 1951, fig. 16). Another very fine jug handle (no. 256) is in the shape of a heron with the feathers and other details indicated by delicate engraving.

These are only a few examples of the many interesting exhibits described in this Catalogue. The work is well illustrated with photographs and line drawings, the text is clearly printed and well-arranged. Altogether its author is to be congratulated on very scholarly presentation of her material in a work which will be of great value to many other scholars.

JOAN LIVERSIDGE

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ROMAN LIFE, by Mary Johnston. Pp. 478. Scott, Foresman and Company, 1957.

"Roman Life" is the modern descendant of "The Private Life of the Romans" by Harold Johnston (1903), for many years the standard handbook on Roman private antiquities. In 1932, Miss Johnston revised her father's book, making minor changes and additions. The present book is not just another revision but rather a new treatment of the subject. While much of the old material has been used, there are significant changes stemming from new educational methods and the evidence produced by the excavations of the last 25 years. The author, who in 1951 retired from the faculty of MacMurray College, is conversant with the needs and interests of the contemporary student and is familiar with recent archaeological discoveries.

In her discussion of various aspects of the daily life and environment of the Romans, she has used a vivid and informal style. Long technical discussions have been abandoned in favor of citation of pertinent paral-

lels with or contrasts to our modern way of life. Latin terms have been kept to a minimum and translations have always been given for the benefit of the reader who is not familiar with the language.

To the evidence afforded by Latin literature and the excavations of Pompeii and Herculaneum, has been added that of monuments from other areas of the Roman world. For example, the conventional account of the Roman house has been enriched by a description and diagram of a villa in Britain.

The format is in line with that used today by publishers of textbooks. The readable type, the wide margins, the copious (473) illustrations are common features of modern textbooks of Latin. Scott, Foresman and Company have obviously desired it to be a companion volume to their series of Latin books. The good illustrations attest improved photographic techniques as well as modern interest in visual education. It is interesting to note the replacement of a drawing of a mill on a relief in the Vatican in the original book by a poor photograph in the 1932 edition, and then to observe the excellent large photograph of it in the present work.

The teacher of Latin in high school or preparatory school will find this book a storehouse of information on subjects which are always of interest to the student who is learning Latin. The college teacher and advanced student may prefer a book with a more scholarly approach such as "Daily Life in Ancient Rome" by Carcopino, translated and edited by Henry Rowell. Such a reader will regret that references to the works of Latin authors cited in the text have not been given. While the elaborate apparatus of notes finds no place in a popular book of this kind, some references could have been given for the benefit of the reader who wishes to check the passage in question.

"Roman Life" should have a wide appeal among various classes of readers. Members of the generation who grew up on "Private Life of the Romans" will welcome an old friend in modern dress, the young student will be glad to learn that the Romans were real people living in a real world and the general reader with an interest in antiquity will enjoy the picture that it affords of the everyday life of the Romans.

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THE SHRINE OF ST. PETER AND THE VATICAN EXCAVATIONS, by Jocelyn Toynbee and John Ward Perkins. Pp. xxii + 293, figs. 24, pls. 32. Pantheon Books, New York, 1957. \$7.50.

Not many excavations have been attended by such difficulties of execution, publication and interpretation as have those which were carried out beneath St. Peter's in Rome in 1940-1949. The digging had to be done in a very small area beneath a church

whose regular services could not be interrupted, and constant provision had to be made for the safety of the great structure of the church. As Miss Toynbee and Mr. Perkins write (p. xvii), there can be few achievements in the annals of archaeology that have had to overcome more formidable practical difficulties. There has been a real need for a book like the present volume, and scholars will welcome its appearance.

The official announcement of the Pope in his Christmas message to the world in 1950, that the tomb of St. Peter had been found beneath his church in Rome (*New York Times*, December 24, 1950, p. 1) naturally aroused the highest curiosity and expectation, coming as it did after the prolonged silence in which the excavations had been conducted. As a consequence, there was disappointment in the learned world when the official report on the excavations was published by the Vatican in December, 1951, at a price corresponding to about eighty or ninety dollars. Miss Toynbee wrote in another place (*JRS* 43 [1953] 1) of this report as "a work muleting the English purchaser of £32 sterling and unlikely to circulate in this country outside a limited number of learned libraries." The limited circulation of the book naturally had the effect of restricting the use which scholars could be expected to make of it. Nevertheless, controversy began as soon as the report was published, and the excavators' presentation of their material was praised, criticized and reinterpreted in a steady stream of publications which continues to appear.

Since the subject matter of the official report, and the interpretation placed upon it, concerned the basis of an ecclesiastical claim which has itself been a subject of controversy, the evaluation of the archaeological evidence became a peculiarly delicate matter. It becomes still more difficult when the excavators refrain, as they have done, from publishing a scientific report, by competent medical authority, on the bones discovered in the excavations, which, one is given to understand, ought to be those of St. Peter, if the interpretation of the official excavators is correct. It has been stated categorically by the excavators that these bones are human, but it is "by no means clear," Miss Toynbee and Mr. Perkins say (p. 134), why a detailed report on the bones has not yet been issued. The delay which has already occurred raises the question whether such a report on the bones will appear, and Miss Toynbee and Mr. Perkins rightly make clear to the reader the consequences, for the official interpretation of the excavations, of the lack of such a report (pp. 134, 159, 184 note 16; 229).

Not long after the publication of the official report, Miss Toynbee and Mr. Perkins undertook the preparation of a volume which, though based on the official report, would present their own conclusions; and the Vatican authorities granted permission for the use of the report, supplied official photographs, and made the excavations accessible for study by Miss Toynbee and Mr. Perkins. This volume, now published, is printed in a format and offered at a price which will make it

available at reasonable cost to libraries and individuals; and it has added importance since it deals with Roman tombs which were not described in the official publication.

The book is divided into two nearly equal parts. The first is an account of the Vatican cemetery, beginning with a description of the area in classical times, and continuing with a detailed archaeological description of the lay-out and chronology of the cemetery, its architecture and art, and the evidence for the owners and the occupants, including information on their positions in the world and their religious beliefs (some were pagans, some Christians). The thirty-two excellent half-tone plates illustrate some of the tombs and their ornamentation and contents. The sculptured sarcophagi are notable, and, as the authors point out (p. 94), are comparable with those of Isola Sacra.

The second half of the book is concerned with the shrine of St. Peter. The authors begin by describing the traditional belief concerning Peter's work in Rome, and his martyrdom there, though they are careful to point out (p. 157) that there are strong objections to the supposition that there was a monument of St. Peter in Rome as early as the late first or early second century, and (p. 160) that "there is serious doubt whether the Apostle's body was ever recovered for burial." However, it seems certain that the shrine which has been excavated under St. Peter's was from an early date regarded as that of the Apostle. A series of detailed drawings makes the very complicated story of the shrine itself easy to follow. The authors describe with great care and clarity the history and structural development of this shrine, and its relation, at successive stages, to the necropolis and then to the church which Constantine the Great built around it; and in order to illustrate the role of the shrine at St. Peter's they discuss the evidence for the cult-center of Sts. Peter and Paul beneath the Church of San Sebastiano by the Via Appia. An Epilogue traces the influence of St. Peter's on the Christian art and architecture of Western Europe, and shows the new evidence that the excavations have provided on this subject.

The Vatican authorities should congratulate themselves that two scholars of the standing of Miss Toynbee and Mr. Perkins have undertaken to provide a monograph of this kind. The book is likely to remain the definitive treatise, and scholars will consult it, rather than the official report. If the conclusions reached in the present volume are less far-reaching than those set forth by the officials of the Vatican, the reader is free to form his own opinion.

GLANVILLE DOWNEY

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THE SYNAGOGUE, by C. H. Kraeling, with contributions by C. C. Torrey, C. B. Welles, and B. Gei-

ger. (The Excavations at Dura-Europos conducted by Yale University and the French Academy of Inscriptions and Letters. Final Report VIII, pt. I.) Pp. 402, pls. 78 (part col.), ills., plans. Yale University Press, New Haven, 1956. \$15.00.

The Final Report on the Dura Synagogue has long been eagerly awaited. At last we have available the official photographs, in black and white for details, in color for most of the paintings, along with a meticulous description of details not discernible in photographs of the cracks and marks, the dipinti, inscriptions, and the rest, for which systematic study of the meaning of the paintings has had to wait since 1934. The work of Torrey on the Aramaic texts, and of Welles on the Greek texts seems completely adequate. Of Geiger's most interesting contribution on the extended Parthian texts the present reviewer has no competence to make judgment.

Kraeling's report is based upon the original field notes, the paintings made on the scene by Gute, the close observations of Pierson the architect, and on almost microscopic examination of the paintings which he made himself after they had been permanently installed at the Archaeological Museum in Damascus. His technical conclusions are of course not infallible. Conversations with Gute have shown how much he feels the glaring sunlight took from the old paintings as they were exposed, and how dubious to him are some of the restorations made in setting up the paintings in Damascus. Even the color reproductions leave some doubts when we see one of the paintings in overlapping sections in plates LXIX and LXX, with the same background red on one and green on the other. But at last the Final Report makes available everything in the records at Yale. Some of the original ceiling tiles can still be seen there, as well as the paintings Gute made in the desert "when the paintings had not been cleaned, but when all the old paint was still on the walls," as Gute said of his work. His copies too are all available at Yale for scholarly use, and the paintings themselves stand magnificently exhibited in Damascus. But most of us can now work very well with the information in Kraeling's volume, though the usefulness of so large a book is greatly impaired by the absence of an index.

Kraeling has reconstructed the history of the building, both from the structural and formal points of view, and the plans he gives seem excellent. He has made many astute observations of detail, such as the identification of the female heads in the ceiling with the "ubiquitous Demeter-Persephone of the eastern Mediterranean." That he may prove less than reliable in overall interpretation, and in his guesses at the meaning of defective paintings, like "Belshazzar's Feast," by no means detracts from the value of his collection of data and descriptions. Here disagreement with him requires great caution.

It would seem to require equal caution to disagree

with Kraeling's massive interpretation of the meaning of the various biblical scenes, his appraisal of the pagan elements with which they are surrounded and permeated, and with his inferences about the type of Judaism practiced in the synagogue. But this the present reviewer must attempt. To begin haggling about details would have no point whatever. Occasionally Kraeling's logic breaks down, as when he begins to interpret all appearances of the Greek robe as the hallmark of a "private citizen," to which he adds prophets, elders, and laymen (pp. 71, 73, 360, 371). In contrast the Persian dress with trousers indicates, he says, persons of the Court and Temple, while the Greek chiton without the mantle indicates a servant. But actually this does not work out. In the Exodus scenes the Twelve Patriarchs or heads of tribes twice appear in the full Greek costume, while the ordinary Israelites are in "servant" dress—a quite unlikely value judgment on the ordinary Israelites. On the other hand the twelve (or thirteen) tribes appear in the central *reretos* painting twice, here both times clothed in Persian costume, though, in the lower scene at least, there is no suggestion of either temple or royal court. On the contrary, the two attendants of the royal throne in this painting, not patriarchs, but proper court "officials," wear the Greek robe that Kraeling thinks marks the "civilian." The twelve tribes at the scene of Moses and the well also wear the Persian dress, this time in contrast to Moses in the full Greek robe, a contrast that hardly makes for Moses' lesser dignity in the scene. Clearly Kraeling's distinctions in the wearing of dress do not carry through, and thereby much of his interpretation loses conviction.

Kraeling's logic actually follows from his major premises as consistently as the logic of most of us. This review can well be devoted to examining these premises. They become explicit only in scattered places, and one has to read and reread the book to appreciate how they set the whole framework of Kraeling's thinking.

The most important single premise is that the new and astonishing data of the synagogue must not be allowed to change conceptions of Judaism commonly held before its discovery. Kraeling admits (p. 340) that "discussion both of presuppositions and of the principles of interpretation will undoubtedly need to go on for many years to come," but this sentence follows directly the statement: "There is great danger . . . of letting our eyes be blinded to, or by, the novelty of the material, and thus of losing perspective either upon the paintings themselves or upon the picture of ancient Judaism as it has been developed from the study of other types of evidence by the scholars of the last hundred years." Kraeling never lets himself lose this "perspective," which amounts to fixation not upon the material he is interpreting but upon his antecedent ideas of the nature of ancient Judaism. These ideas function as a sort of answer book by which he verifies all conclusions throughout.

Kraeling fails to see that with such a major premise archaeology loses all point except to provide illustrations for the books of philologists. Archaeological data can less easily be appraised than written words, but they offer no less immediate and first hand evidence of the past in their own right. It seems much more reasonable to begin with the assumption that the synagogue was decorated by Jews who wanted this sort of decoration. But we have encountered nothing to suggest such a desire in the writings of any other Jews of antiquity. Certainly Philo and Josephus did not like forms of any kind. The rabbis, a few of them, did shrug their shoulders when synagogues were decorated, but others, most of them, hated all animate representations. The general impression of rabbinic writings was such that when the Dura paintings were discovered they distinctly shocked rabbinically orthodox Jews. But by Kraeling's premise we must not let ourselves lose "perspective," that is, see in this material evidence of a Judaism different at least in some respects from what Philo, the Apocalypses and the rabbis liked. Actually, of course, we have much evidence beside that at Dura of a Judaism, or of Judaisms, which put carvings, paintings, and figured mosaics on their graves and synagogues. To these Kraeling makes occasional references, but finally says that, with a few exceptions, "the decorative material associated with Jewish monuments is to my knowledge limited to the representation of things and does not include animate beings" (p. 345). Here the major premise has indeed taken the place of the data, for animate beings are represented everywhere on Jewish monuments. In contrast it seems worth suggesting that one start with one's data, all of them, rather than with a "perspective" determined without those data. In this case, we would recognize that in addition to the verbal documents of Judaism of the period, the Dura synagogue is the single most important monument, but only that; it shows beside the biblical scenes a great mass of pagan ornament and animate forms of the sort we know from Judaism of the Graeco-Roman period everywhere except in Babylonia proper.

With the very existence of this mass of archaeological data denied, Kraeling can indeed return to the old notion that hellenized Judaism disappeared almost immediately after Philo, and that Judaism was thereafter legalistic in the later orthodox rabbinic sense, and was generally controlled from Palestine and Babylonia (pp. 324-326). Certainly this is the picture that scholars of the last century have rightly supposed the rabbis presented in their writings. If, then, with Kraeling, we use practically nothing but rabbinic literature to explain the paintings, the circle is complete, and we must conclude that the paintings at Dura reflect rabbinic Judaism. But we reach these conclusions only by denying the existence of the other archaeological data, and ignoring the non-rabbinical writings. Scholars like Liebermann are quite independently seeing a measure of Greek influence in rabbinic writings

themselves which has no place in Kraeling's "perspective."

To carry the logic further, the Jewish community at Dura is in this volume made subservient to the Jews living far to the south in Babylonia. These Jews, as Kraeling also describes them, presented a unique phenomenon. They were survivals of the old Babylonian captivity, took over a considerable territory bodily, and, largely untouched by Hellenism, spoke and wrote Aramaic and lived a careful halachic life by the strictest rabbinic standards. Kraeling does not consider how different was the situation in the Hellenistic-Parthian-Roman city of Dura, where the Jews were a mere handful in the total, where they built their synagogue directly on the model of the pagan shrines about them, especially the mystic inner shrines; where to all appearances they largely spoke Greek (even the word *ἀρχῶν* appears in Aramaic spelling for the chief official), and where they filled their synagogue with paintings of Jewish and pagan subjects together, done in a Graeco-Parthian manner. Quite possibly one can explain the paintings from the writings of Babylonian Jews. Quite possibly one cannot. Clearly literary sources of all kinds must be examined with equal thoroughness, and when the paintings themselves seem to fit with none, the paintings must be allowed to tell their own story, whether we understand it or not.

Another basic premise rarely comes out explicitly, but works in Kraeling's thinking throughout, namely that a simple explanation is always to be preferred to a complex one. It need only be said to this that in discussing human motivation, no major premise can be more misleading. Our motives, especially our religious motives, are rarely simple at all, especially when we put up symbols and decorations in places of worship. One of the chief causes of error is our intolerance of complexity.

Following such major premises Kraeling must, and does, assert that the pagan structure of the synagogue lost all meaning when the Torah shrine took the place of the cult image to represent the Shekinah or presence of deity; that the pagan motifs in decoration were a stock "commercial job," (p. 54), even though pagan motifs like Nike, Ares, Tyche, Psyche and the Three Nymphs appear conspicuously in the biblical paintings themselves. So the Judaism of the synagogue, in a dubious phrase Kraeling used in another connection, is no "less Jewish" than the Judaism accepted by rabbinic writers, by which he means that it is no other than rabbinic Judaism.

It seems in point here to suggest more profitable major premises.

(1) The evidence of archaeology must be taken seriously in its own right. When it obviously reflects ideas we know from written sources we can explain the one by the other. When archaeology presents problems not anticipated by philologists, we must be prepared to follow the archaeological data to new ideas about antiquity.

(2) Since Dura was a part of the Graeco-Roman-Parthian world, we cannot assume that Jews lived there in conditions like those in the Babylonian cities to the south.

(3) That the Jews wanted to construct their place of worship after the model of pagan inner shrines, and to cover its walls and ceilings with paintings directly borrowed from pagans, or with biblical scenes done in a Greek-Parthian manner, and including Greek-Parthian figures, must open our minds to the possibilities of a pagan influence on their Judaism to an extent that the rabbis in the Jewish cities to the south never experienced.

(4) That as the Jews of the synagogue presumably considered their Judaism a unit, however complicated the elements in it, so their place of worship probably was a unit to them. Samuel, the presbyter and archon, who perpetuated his memory by inscriptions in Greek and Aramaic on the ceiling, felt at home with the decorations in the ceiling quite as much as with the biblical scenes and cult objects on the walls. This, if not a major premise, is a necessary first hypothesis to test from the material itself.

(5) If the Jews at Dura made their place of worship resemble the pagan inner shrines, especially the mystic shrines, about them, they presumably felt analogy, as well as contrast, with pagan worship.

(6) Because we have no hellenized Jewish literature after Philo, we cannot assume *ex silentio* that Jews ceased to be hellenized after this time. The hellenized archaeological remains suggest continued hellenized influence.

(7) "Judaism" must consequently be regarded as a fluid term, whose meaning may well be modified with each new discovery.

(8) As a hypothesis we must assume that the modern criterion of Jewishness, loyalty to the tradition and people rather than to any legalistic interpretation, may well be the one we must often fall back upon as historians. The Jews who built synagogues and had their special cemeteries clearly felt themselves a distinct group, separate from pagan identity or worship. More we cannot assume about their beliefs as a premise.

(9) The meaning of art forms must be concluded from the origin and history of those forms. (Kraeling's treatment of the history of the art forms is quite inadequate, both in paganism and Christianity).

Such would seem to be more promising basic assumptions than those of Kraeling. Since this review has so largely disagreed with Kraeling, it may well end by quoting him in hearty approval as he summarizes his general position, p. 325:

"It is a nice question whether the existence of these monuments implies a larger measure of Jewish outreach toward contemporary culture than what has just been said about the major trend in the development of Jewish thought might seem to suggest. If it did, the position taken above would need to be revised."

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THE ARCHAEOLOGY OF HUMBOLDT CAVE, CHURCHILL COUNTY, NEVADA, by Robert F. Heizer and Alex D. Krieger. Pp. 120, figs. 11, pls. 34, tables 12. University of California Press, Berkeley and Los Angeles, 1956. \$3.50.

Humboldt Cave is located at the west end of the barren Humboldt Mountain Range in west central Nevada, about 4 miles south of Ocalia. The site is a small tunnel-like cavern 49 feet long, 8 feet wide and about 10 feet high. The entrance, facing north, overlooks Humboldt Lake, which now is a dry, windswept playa that remains as one of several remnants of Pleistocene Lake Lahontan. Lovelock Cave is located 25 miles to the north.

The archaeological deposits in Humboldt Cave are described with gratifying clarity and well illustrated by text figures and photographs. The high quality of the field work is noteworthy for a cave so dark, dusty, and cluttered with pack rat debris as this one.

The cave was not used for residence or human burials, but served instead as a storage vault for artifacts deposited in subsurface caches. Arts and crafts are represented by artifacts of bone, stone, fiber, and horn, fishhooks and decoy ducks, and some 2,000 fragments of basketry. These objects are described in very satisfactory detail, and reasonable inferences about function are made.

The basketry analysis is of unusual interest in that the scattered scraps were matched, like potsherds, to permit identification of about 400 individual baskets. Thus, although the coiled fragments amounted to only 21 percent of the total number of fragments, after matching, they constituted about 40 percent of the individual baskets identified. Of the remainder, about 5 percent were twined baskets, and the rest wicker. The authors demonstrate very clearly that with material of this sort the study of basketry can be as instructive as the study of pottery. A coiled basketry feature of special interest is the decrease in diameter of successive coils spiralling outward from center to rim. By way of minor criticism, an inference about the parching process on page 47 may be questioned: that is, the use of hot stones for roasting seeds in basket trays. This is at variance with the conventional practice of stirring and tossing live coals and seeds or nuts together on the tray by the Indian woman who, at the same time, puffs the resulting ashes away.

Much useful information is contained in four appendices: I—a catalog of specimens from each of the 31 caches; II—a detailed description of an *apocynum*-cord sling pocket, by Chérie Grégoire; III—a systematic identification of faunal remains, with estimates of the number of individual mammals and birds represented by bones, and emphasis upon the relative prevalence of mountain sheep and scarcity of deer; IV—photographs of Northern Paiute wickiups taken by C. Hart Merriam at Pyramid Lake, Nevada, in 1903.

Heizer and Krieger assign the occupation to the Lovelock culture. The radiocarbon age for Humboldt Cave is 1953 years ago, ± 175 ; that is, about the beginning of the Christian era, and contemporaneous with the latest prehistoric occupation of Lovelock Cave.

On ethnographic evidence, the authors think it probable that the people of Humboldt Cave were Shoshonean-speaking, and possibly but not certainly ancestral to the Northern Paiute. Beyond the local scene, they find a definite but weak connection with the cave cultures of southeast Oregon, and still weaker connection with trans-Sierra California. Comparisons with Southwest Basket Maker culture show only parallels at best, and the Lovelock culture is convincingly shown to be several centuries earlier than Basket Maker II. The cited comparisons with artifacts from these neighboring regions do not exhaust the sources; nevertheless they are generally adequate to support the conclusions drawn.

Heizer and Krieger have published a contribution of real merit on the archaeology of Humboldt Cave—a drab site that was disagreeable to excavate, with artifacts that required tedious, allergy-inducing analysis in the laboratory. They are successful in showing that unspectacular sites like this one may yield information of great value for the solution of general problems in North American prehistory.

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KLAMATH PREHISTORY. THE PREHISTORY OF THE CULTURE OF THE KLAMATH LAKE AREA, OREGON, by L. S. Cressman. Pp. 138, pls. 33, maps 3, tables 20. Transactions of the American Philosophical Society, new series, Vol. 46, pt. 4. Philadelphia, 1956. \$2.00.

Cressman here reports several seasons of field exploration, begun in 1947, in the Klamath Lake basin of southern Oregon. A cave (Medicine Rock) and a midden (Kawumkan Springs) were the principal sites investigated. Both are reported in detail and there is also a summary of contemporary Klamath culture and three appendices considering the human skeletal remains (by W. S. Laughlin), dog remains (by W. G. Haag), and bird and fish bones.

Medicine Rock Cave contained a layer of pumice attributed to waterlaid deposits from the Mt. Mazama eruption, dated by radiocarbon at about 6500 years ago. Only one artifact, a point, was found beneath this layer; an additional 43 artifacts occurred above the pumice. No perishable material was preserved except a small fragment of burned matting.

A more extensive collection came from the Kawumkan Springs Midden, a site with house-pits on the surface and a depth up to two meters. Some 3000 artifacts were collected, two-thirds of which were

scrapers and nearly all the rest projectile points and grinding tools. Only 23 bone artifacts were recovered—a remarkable scarcity since over 5000 unmodified animal bones were found. This suggests that perishable items of wood or basketry may have been important in the aboriginal technology even though no such objects were preserved.

On the basis of rather tenuous cross-dating, Cressman believes the Kawumkan Springs Midden was occupied from "... at least 7500 but possibly 10,000 to perhaps 1700 years ago." The site has a later re-occupation represented by historic house-pits of the 1860's.

A methodological technique of general interest is Cressman's use of original and "adjusted" numbers of artifacts and animal bones. Correctly recognizing that the lower levels of a site are seldom excavated as much as the upper ones, he attempts to compensate for this by figuring the number of objects that *would have been found* if a constant volume of midden was investigated for each level. It is important to realize, as Cressman has done, that what looks like a shift in artifact frequency may actually result from differential sampling of the different levels. However, the proposed scheme for dealing with the problem is not altogether convincing. Cressman excavated the site in five levels of 40 cm. each, chose level II as his control for volume, and then adjusted the numbers of items found to this control. This results in a subtraction of artifacts from level I (the 132 points found in this level are counted as 125 points), and an increase in number of objects in levels III to V (the number of points found in level V is adjusted from 4 to 19). The total number of points is adjusted from 374 to 449, so that 75 additional projectile points have been added to the collection by statistical means. The purpose is to gain a more realistic picture of artifact distribution in the site, but there are both archaeological and statistical reasons for questioning this method of adjusting the results.

The report includes detailed discussion of the faunal remains, divided into broad categories of rodents, birds, fish, game, and carnivores. Cressman concludes that the midden records a change from generalized Great Basin hunting and gathering to a more restricted range of food resources with fish becoming a dominant part of the diet.

In presenting much new material as well as some provocative techniques of analysis, this monograph well deserves study by the serious archaeologist.

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ARCHEOLOGY OF THE FUNERAL MOUND, OCMULGEE NATIONAL MONUMENT, GEORGIA, by Charles H. Fairbanks, with Introduction by Frank M. Setzler. Archeological Research Series, No. 3, Na-

tional Park Service, Washington, 1956. Pp. vi + 95, figs. 6, pls. 28, tables 6. \$1.00.

This third volume in the National Park Service series unquestionably shows the validity of reworking and writing up some of the half-forgotten research carried out under the massive depression-days excavations of the government sponsored relief programs. One can only wish that a few more of these excavations, some now over twenty years old, could be likewise resuscitated. Fortunately Fairbanks was present during part of the five years of excavation at Ocmulgee between 1933 and 1938; but it was in no sense his dig, and he has carefully brought together data from old field notebooks to piece together this report. He was also aided by the fact that he was recently in residence at the site during the major portion of the time required to analyze and write up the material.

The central theme for the volume is the Funeral Mound, known also as Mound C, which was both a multi-stage pyramidal earthen mound and also a mortuary repository for more than ninety human burials. These very numerous interments set it off from the other six mounds at the site, at least two of which were primarily substructures for ceremonial buildings. However, Fairbanks has gone much further than this limited objective in his report; in "The Background" he has drawn a brief but understandable résumé of what has happened through history in the Macon Plateau area from Paleo-Indian times to the Historic Creek occupation of 1685-1716. His correlation chart included in this section serves to draw the picture of cultural and temporal relationships into fine focus, but the chronological column appears to err occasionally on the conservative side when viewed from the vantage point of Carbon 14.

The second major section of the report deals with the excavations of the Funeral Mound, and here Fairbanks describes in detail the seven mound building stages and most of the 111 pits that pockmarked the strata. Six of the mound stages were well preserved and each level was generally topped by a summit plate, very often of clay, and a layer of sand. The sand appears to have been purposefully placed on top of the clay, perhaps to give a better footing. Presumably a structure of perishable material was erected on the flat mound top, as post holes were noted on the vertical profiles. Unfortunately no horizontal plotting of these post holes at each mound level was made so that no data on the shape or size of these structures, possibly charnel houses, are available.

The following analytical section describes the cultural stratigraphy and artifacts in narrative fashion and concludes with a discussion of related sites throughout the southeast. The artifacts found with the burials are used with other data from the site to present a description of the Macon Plateau component which was represented by a sub-mound burial pit and all the subsequent mound construction. The evidence for the sequence of cultures in the Funeral Mound is largely

confined to ceramics, and these indicate a mixed pre-mound occupation with a number of periods represented; the strong Macon Plateau component and finally a light Lamar occupation followed by an intensive Ocmulgee Fields or Historic Creek component. Fairbanks concludes that the "Macon Plateau [component] represents a rapid invasion of Georgia by an Early Mississippian people . . . , [who] seem to have come from the west . . . ; they possessed a full corn agriculture and a politico-religious organization of considerable complexity."

The volume is concluded with a "Summary of Life on the Macon Plateau" which is a good attempt to fill out the archaeological bones with ethnographic flesh and is complemented by Appendix D which is made up of trait lists of the Macon Plateau and Ocmulgee Fields components with the traits grouped under headings of Activities such as Subsistence and Craft. This latter procedure follows that which Fairbanks first used in his Stallings Island paper in 1942.

This report thus gives us the first really detailed and well illustrated account of the Macon Plateau culture, although various details of the site have been known from A. R. Kelly's 1938 preliminary report and from Fairbanks' article on the Earth Lodge in 1946. The placement of the site's major component as typologically Early Mississippi is unassailable—it is in fact one of the purest components described to date. However, the only reliable dating criterion is that it stratigraphically follows the Swift Creek period. If Swift Creek is equated with Hopewell, as it usually is (Fairbanks makes the equation; Table 1), then what fills the gap between the C¹⁴ dated ending of northern Hopewell in the first few centuries of the Christian era and the beginning of the Early Mississippi period and the Macon Plateau focus? This reviewer wonders if a Carbon 14 determination from the lower levels of the Funeral Mound might not date somewhere around A.D. 600, three or four centuries earlier than Fairbanks' dating.

Several other questions are raised by the Funeral Mound. One is based on the very fact that this early pyramidal mound was used as a burial place. This practice can be compared to the similar features found in the Powell Mound at Cahokia, Illinois, where very similar shell beads were found with the burials; and in the recently excavated mound at Aztalan, Wisconsin, which seemed to contain a charnel house and burials. These components all represent Early Mississippi cultures, and it might be suggested that the combination of numerous burials in flat topped mounds represents a blending of the earlier Burial Mound tradition with that of the intrusive Temple Mound tradition.

A last consideration is on a more practical level and involves the interpretation of the ceramic stratigraphy as described by Fairbanks (pp. 37-49). In this section at least five earlier ceramic periods represented by some 1300 sherds are separated off from the Macon Plateau period, which is followed by two later occu-

pations. Each one of these periods is regarded as a separate occupation except a possible connection by carry-over from the Lamar to the Ocmulgee Fields period, and even here Fairbanks feels there is some break. Thus ". . . we are not dealing with one cultural continuum. . ." Yet, as Fairbanks points out, the sherd graphs (fig. 6) show what appear to be fragments of the bimodal frequency curves that have been used to characterize the assumed *continuous* pottery changes in the Lower Mississippi Valley. He explicitly states that the situation at Macon Plateau is just the reverse, and his assumption is one of discontinuity. The data he presents form one of the strongest cases against the easy acceptance of the continuity assumptions implicit in the ceramic seriation method. If the obvious Macon Plateau intrusion does not show up well in his graphs, how are such similar breaks to be recognized (or discovered) in smoothed seriation charts?

This volume by Fairbanks is, we are told in the foreword, the first of a series of major reports on the site. If the rest are forthcoming and measure up to this one, Ocmulgee National Monument will deserve its long hoped-for position as a center of prehistoric research in the Southeastern United States.

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THE ANCIENT MAYA, by *Sylvanus Griswold Morley*, third edition revised by *George W. Brainerd* and edited by *Betty Bell*. Pp. x + 494, frontis., pls. 102, figs. 57, tables 10, endpaper map. Stanford University Press, Stanford, 1956. \$10.00.

MAYA ART AND CIVILIZATION, revised and enlarged with added illustrations, by *Herbert Joseph Spinden*. Pp. xlvi + 432, frontis., pls. 100, figs. 372. The Falcon's Wing Press, Indian Hills (Colorado), 1957. \$10.00.

More than a century ago Stephens and Catherwood first introduced the exotic splendor of Maya civilization to the modern world. Ever since then the hieroglyphic writing, accurate calendrical systems, elaborate sculptural art, and monumental temple architecture of the Maya have excited the curiosity of both the popular and the scholarly world. Indeed, many admirers of the Maya have come to look upon the full flowering of the Maya civilization as the crowning achievement of the pre-Columbian New World. Foremost among these admirers have been Sylvanus G. Morley and Herbert J. Spinden. *The Ancient Maya* and *Maya Art and Civilization* make available in partially revised form some of their most successful contributions to this popular view of the prehistoric Maya accomplishments.

Morley dedicated his life to the study not of the Maya but of the glory of the Maya. The first edition of *The Ancient Maya* was an eloquent summary of this life work. It was a delight to read and to look at and it was recognized by an eager reading public as a magnificent panorama of the Maya world. However, the book was immediately and severely criticized by other scholars because Morley, in his enthusiasm for the Maya, had overemphasized the uniqueness of their civilization and overlooked the importance of the generalized cultural heritage which they shared with the other peoples of Mesoamerica. It was particularly difficult to reconcile this insistence on uniqueness, the tremendous emphasis on epigraphy, and the reconstruction of Maya history in terms of Old and New Empires with the growing body of archaeological information stemming from extensive ceramic, architectural, and comparative studies.

Important critical reviews were published by Alberto Ruz Lhuillier (*Acta Americana* 6 [1948] 78-88) and George W. Brainerd (*American Antiquity* 14 [1948] 133-136). Brainerd's work on Yucatecan ceramics clearly demonstrated the inadequacy of Morley's reconstructions. When the publishers decided to issue a third edition they invited Brainerd to undertake the difficult task of revising the work along the lines of the chronological scheme which he had presented in his review and in his brief book, *The Maya Civilization* (The Southwest Museum, Los Angeles, 1954). This he has done with skill and restraint.

The revised edition of *The Ancient Maya* presents the full sweep of the Maya development within an archaeological framework which is in accord with the most recent findings, but without sacrificing much of Morley's enthusiasm and admiration for the Maya. It offers the reader the same rich sampling of the Maya grandeur which made the original edition so popular as well as new material on the mural paintings at Bonampak and the Ruz tomb in the Temple of the Inscriptions at Palenque. Brainerd has rewritten three chapters. He has eliminated the unsupportable reconstruction of Maya history which is summarized in the terms Old Empire and New Empire from his chapters on the Classic and Post-Classic and has brought to the chapter on ceramics the authority of his own research. However, the discussions of the origins of the Classic civilization are still couched in terms of the dates on Maya monuments and do not adequately reflect Brainerd's keen interest in the formative stages of the Mesoamerican cultures.

Brainerd's untimely death prevented him from adding to the revision his mature appraisal of the Maya civilization. His editorial assistant, Betty Bell, wrote the final chapter to provide a glimpse of his ideas on this subject and especially his assessment of the place of the Maya in the evolutionary schemes of Childe and Steward. She is also responsible for the set of useful notes which cross-reference the sensibly reduced bibliography and introduce alternative interpretations which Brainerd could not successfully integrate into

his revised text without radically changing Morley's outline for the book.

Spinden, like Morley, has always been tremendously impressed with the astronomical and calendrical achievements of the Maya. In fact most of his papers on Mesoamerican subjects have dealt with calendrical problems and especially the 12.9.0.0.0 correlation of the Maya and Christian chronologies which he has so consistently championed. Unlike Morley, who did not summarize his views on Maya civilization until late in life, Spinden produced important syntheses early in his career. *Maya Art and Civilization* is little more than a reprinting of two of these early summary studies. Unfortunately, the publishers do not make this fact clear and nowhere do they identify properly or adequately the publications which they reproduce in this volume.

Part I is a photographic reproduction in reduced format of *A Study of Maya Art; its subject matter and historical development* originally published in 1913 as Volume 6 of the Memoirs of the Peabody Museum, Harvard University. This study is without doubt Spinden's most important work and its reprinting is to be welcomed for it has long been out of print. It is a tribute to the lasting quality of Spinden's early appraisal of the artistic achievements of the Maya that it can be offered over 40 years after its original publication as a useful introduction to Maya art, even though it needs extensive revision as a result of the gain in knowledge over this period of time. No revisions have been made in the present edition.

Part II is a reprint with a new title of the third revised edition (1928) of Spinden's *Ancient Civilizations of Mexico and Central America* which was first published in 1917 in the Handbook Series of the American Museum of Natural History. Again the text and illustrations are reproduced without change except that the text has been reset to better utilize the larger page size of the reprinted edition. This little monograph was for many years the best brief treatment of the several related traditions of civilization in the Mesoamerican area and until fairly recently the 1928 revision could be considered reasonably up-to-date. However, the archaeological advances of the past 15-20 years have so changed the picture that the reprinting of the unrevised 1928 edition hardly seems justifiable.

Spinden has ostensibly revised the reprint by adding a 27 page epilogue called "Maya Dynamic Dating and the Fallacy of Time" and 48 illustrations. Neither the new plates nor the long accompanying captions, which contain undocumented identifications of various temple structures with individual Toltec rulers, seem to have any relationship to the new text material. The text of the epilogue, as its title indicates, is devoted to calendrical problems and is pure Spindenese, for it provides no more than an unfortunately confused restatement of his oft stated views on Mesoamerican chronological problems.

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A CHANCAY-STYLE GRAVE AT ZAPALLAN, PERU, by S. K. Lothrop and Joy Mahler. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. L, No. 1. Pp. viii + 38, pls. 17, figs. 10, tables 9. Peabody Museum, Cambridge, Massachusetts, 1957. \$2.50.

Zapallan lies inland on the rim of the Chillón Valley, roughly equi-distant from the Chancay and Rimac Valleys. Adobe brick and tapia ruins, large stone grinding troughs, and extensive graves mark this ancient site where a reed-roofed, cubical grave opened in the presence of S. K. Lothrop in 1943 yielded abundant, unusual contents. Of first interest was the flexed mummy, to whose inner wrappings were sewn representations of breasts made of cloth stuffed with cotton fiber; such symbols are unique and unexpected from Peruvian burials. A feathered poncho, brocaded shawl, and several mediocre cloths were within the mummy bundle. A false head stuffed with avocado leaves, which had a hair fringe and silver facial features, topped the wrapped and roped bundle. Surrounding the bale was a remarkable number of yarn-wrapped reeds, considerably more than two hundred. Other grave furnishings included sixteen pottery vessels, two work baskets with the customary contents, a loom, a gourd, cotton fiber cones, and two dogs.

Description and comment on these diversified materials have been made by several contributors: the pottery, S. K. Lothrop; the textiles and related artifacts, Joy Mahler; the dogs, Barbara Lawrence; the textile dyes, William J. Young. Vegetal remains were identified by Margaret A. Towle.

The sixteen pottery vessels within the grave represented five well-known Central Coast ceramic styles: White and Black on Red; Red, Black and White Geometric; Black on White; Plain White; Plain Red. Each style is discussed (pp. 5-12) with reference to comparable surface materials collected at Zapallan and other Central Coast sites (now in the Peabody Museum) and to germane materials in the literature. Lothrop concludes that ". . . ground associations at three sites in the Chancay Valley and also at Ancon, Zapallan and Pachacamac indicate that overlapping and contemporaneity of certain pottery types is as well established as their supposed sequence" (p. 12). This conclusion might have been strengthened if the proportionate representation of each of the five styles had been given for the grave-lot and surface pottery from Zapallan. These data might then be used toward the style-sequence revision which Lothrop suggests (pp. 12, 26).

Twenty-one cloths from the grave are analyzed for fiber, direction of spin, yarn count, color, and other technical features (pp. 12-19). The feather poncho is given detailed description, as are the striped and plaid utility fabrics; the tapestry fragments and a possible patchwork piece are also described. The largest complete textile, a shawl with brocaded corners, is

omitted from special comment: the brocading technique and designs surely merit equal treatment.

Two hundred and six yarn-wrapped reeds are analyzed for fiber, spin, color, and method of construction (pp. 22-25). The pattern-frequencies of the wrappings are: Banded, 146; Spiral, 15; and Diamond, 45. Although wrappings of two to four colors are the most common and five to seven colors rarer, at least sixteen colors are present in the seven hundred and forty-seven veneering yarns analyzed.

Most of Mahler's discussion of the textile materials, whether cloth or reed-wrappings, centers on the direction of spin of the yarns which is predominantly S-spun single and Z-spun, S-doubled. This she contrasts with the differing spinning traditions of the North and South Coasts of Peru and introduces new data on Central Coast spinning from Zapallan (surface textiles), Pachacamac, Bandurria, Chilca, and Mala Valley.

There is other valuable information in this paper, e. g., on the loom, the contents of the work baskets, and two "dolls" from Pasamayo, as well as illustrations of Chancay-style pottery from sites other than Zapallan. The two dogs are classified as "Inca" type by Lawrence, and Young describes the laboratory techniques by which he identified indigo, cochineal, and possibly fustic dyes, and alum and iron mordants.

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CERAMIC SEQUENCE AT UAXACTUN, GUATEMALA, by Robert E. Smith. 2 vols. Pp. 214, maps 2, charts 2, tables 23, collotype illustrations 86. Publication No. 20, Middle American Research Institute, Tulane University, New Orleans, 1955.

Uaxactun, in the northern Petén Department of Guatemala, lies near the heart of the territory of the Maya "Old Empire." Selected in 1926 for intensive excavation by the Carnegie Institution's archaeologists, it has provided much of the basic data on stelae, architecture, burials, domestic mounds, and artifacts of the Maya Pre-Classic and Classic Periods. (See Ricketson, O.G. and E.B., *Uaxactun, Guatemala: Group E—1926-31*, Carnegie Institution of Washington, Publication No. 477, 1937; Smith, A.L., *Uaxactun, Guatemala: Excavations of 1931-37*, same series, No. 594, 1950; Kidder, A.V., *Artifacts of Uaxactun, Guatemala*, same series, No. 576, 1947.)

R.E. Smith's pottery studies of Uaxactun have continued the initial work begun by Edith B. Ricketson, and in the present monograph he provides a detailed analysis of all Uaxactun ceramics which were obtained at that site over the excavations of 1926 through 1937. Smith's work is an outstanding contribution, being the most complete investigation of prehistoric Maya pottery published to date. It will serve as a basic datum of comparison for all future Maya ceramic studies for

many years to come, and its importance and implications extend to all aspects of Maya archaeology.

The bulk of the Uaxactun ceramics was recovered from debris underlying the principal plazas, from the fill between floor levels of plazas, temples, and palaces, and from tomb associations. Like other Maya "cities" of the Petén or Usumacinta lowlands, Uaxactun is considered to be a "ceremonial center." That is, it consists of a complex of stone-faced platforms and flat-topped pyramids capped with vaulted stone masonry buildings; and it is presumed to have functioned as a politico-religious "capital" for the immediately surrounding territory. Although it may not have had a large resident population, the substantial amount of broken pottery and other refuse at the site implies continuity of habitation over a very long period. The problem of surrounding supporting populations for such a ceremonial center and those permanently domiciled there is a complex one with which Smith's monograph is not immediately concerned. It is germane, however, to note that Maya pottery from Uaxactun and comparable centers is, in large part, duplicated in outlying house sites and hamlets.

In a brief *Introduction* Smith ably sketches in the Maya archaeological setting for the Uaxactun ceramic study. In so doing he draws upon his unparalleled survey knowledge of Maya pottery from other sites and regions. Uaxactun appears to be representative of what might be termed a Northern Petén ceramic region, with north-south limits at Calakmul and Yaxha, and with Yaloch and the Rio San Pedro Martir setting approximate east-west boundaries. Adjacent British Honduras, with such sites as Benque Viejo, San José, Baking Pot, and Barton Ramie, adheres closely to Uaxactun pottery norms. The west, on the other hand, is more divergent (as at Piedras Negras) or, in cases (as at Palenque), strikingly different. Thus, we see that the relative uniformity of sculptural art, architecture, writing, and the calendar that binds together a southern lowland Maya subarea of Middle America does not obtain in the same degree in ceramics. Smith's later ceramic phases are correlated with Initial Series stelae dates and building construction periods so that the earlier, Tzakol, is placed between Maya dates 8.12.0.0.0 and 9.8.0.0.0 (A.D. 278-593, Goodman-Thompson correlation) and the later, Tepeu, between 9.8.0.0.0 and 10.3.0.0.0 (A.D. 593-889). In gross, these equate with the generally accepted divisions of the Early and Late Classic periods of Maya civilization. The two ceramic phases, assigned to Pre-Classic times, Mamom and Chicanel, are not specified as to absolute age. The current assumptions are, however, that Mamom begins a millennium or more before A.D. 1 while Chicanel lasts until the onset of Tzakol or intergrades with a short transitional phase between Chicanel and Tzakol, the Matzanel.

Smith's presentation of the pottery is detailed, fully descriptive, and essentially analytical. The work is well illustrated. (The entire second volume is devoted to plates and their captions.) It is a reference book and is

intended as such. In many ways it is easy to use. For example, the reader—most likely another archaeologist classifying pottery from the Maya lowlands—will have rapid reference to such an item as a St. Andrew's Cross design, its varieties, techniques of execution, and occurrences in the sequence. Or he may summarize at a glance the diagnostic vessel forms, surface finish, and decoration of all pottery of the Tzakol 2 subphase. He will not, however, find pottery classified as it is in the archaeology of the Southwestern or Southeastern United States, for Smith does not use the type concept in the same formally structured sense as do the archaeologists of those areas. This is not offered as a criticism, but I think the point deserves some further comment by way of reflection on archaeological pottery study, its development, and implications in the various areas of the Americas.

Smith's major typological divisions are designated as "wares," and defined by paste and surface finish. These include "Unslipped Coarse Plain," "Unslipped Coarse Daub," "Fine Waxy," "Fine Gloss," and a variety of others grouped under "Miscellaneous." A ware category such as "Fine Gloss" embraces a tremendous range of variation in vessel forms, decorative techniques, and designs. Virtually the whole of Classic Maya dichrome and polychrome pottery is so subsumed. As a construct it is comparable to H. S. Colton's Southwestern wares, a classificatory division little used in that area because of its lack of utility in effecting spatial or temporal separations. Within "Fine Gloss" it would appear to the reviewer that a number of useful types could have been formalized. This is, in effect, conceded by Smith in an introductory note to his analysis of Uaxactun pottery by phases when he states (p. 110): "Throughout the analysis, form is given preference over ware and decoration, chiefly because this manner of presentation offers the clearest picture of the development of the potter's art at Uaxactun." On the other hand, Smith's list of wares under "Miscellaneous" contains several which are conceptual equivalents to Colton's *types*, the ceramic entity upon which Southwestern archaeology is truly founded. "Vineaceous Tawny," while differing in lack of gloss and surface color from "Fine Gloss" ware, is sharply defined as a type by a relatively limited range of vessel forms, colors, and decorative designs. "Thin Orange" is another which, while having surface and paste features which are distinctive, also shows a concordance of several lines of variables in vessel form and decoration. It is likely that it also has been "kept apart" in classification because it is known to have very specific historical properties as an horizontal marker in other parts of Middle America. In other words, its utility as a type has, to some extent, been demonstrated in other regions outside of the Northern Petén.

Relating to the above, it is interesting to speculate as to just how the total archaeological conditions in any area—the nature of sites, of the materials themselves, and of corollary means of historical reconstruction—may condition pottery classification. In the Maya field it is probably significant that the first real advances

came in calendrical decipherment, in the reading of the dates, and in the correlation of architectural and art forms with these dates. Systematic studies of ceramics, other than iconographic appraisals, have come about relatively late. Smith is one of the pioneers of the kind of pottery study where thousands of sherds are classified and counted in a standardized fashion. At Uaxactun, although ceramics played a part in defining culture sequence, the pottery was, to a very great extent, already dated by its associations with building levels and carved stelae. Smith's primary task was, therefore, to describe unit assemblages of pottery whose chronological limits had been set. In Southwestern or Southeastern United States archaeology, pottery itself, seriated by horizontal or vertical stratigraphies, was the first line of attack in chronological determinations and established the framework into which other aspects of archaeological culture were subsequently placed. (Tree-ring dating in the Southwest did not get underway until well after such ceramic chronologies were established.) This difference in general approach may very largely be the reason why Smith's classification is operated with a minimum of formal taxonomic machinery—a few large ware categories and within each of these hundreds of modes or variables of vessel form, decorative technique, and design elements whose occurrences are simply plotted in phases or periods. As against this, the Southwestern system, if we may call it that, utilizes the type, which is a clustering of modes or variables and is intermediate between anything as widely inclusive as a ware or as specific and minute as an individual mode.

Each system of classification has its advantages and disadvantages. The Southwestern type is geared to facilitate rapid communication between archaeologists in matters of chronological and distributional appraisals. "Pinedale Polychrome," as a type designation, conveys very definite spatial-temporal and cultural contextual information to the initiated that would take a page or two of vessel form, color, technique, and design element tabulations to pass along. It is, in this way, much like some of Smith's "Miscellaneous Wares," such as "Thin Orange." At the same time such types may keep "locked" within themselves significant differences, a knowledge of which would be of value in the tracing of pottery history of the region or area. The Uaxactun system, while being more cumbersome for communication, is less committed in that it has not carried its units to as high a level of synthesis. In this regard it should be noted that Smith has provided the reader with numerous tables of correlation of design, color, and decorative technique as these occur on specimens within each phase and that further correlations of these variables with vessel forms are taken care of in detailed descriptive presentations. There are at hand, then, the associational data for the examination and testing of clusterings of modes or attributes by inspectional or statistical means.

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Fig. 1. View to southeast: Phrygian Gate and (right) Building C; below, Burned Phrygian Building and east side of West Phrygian House

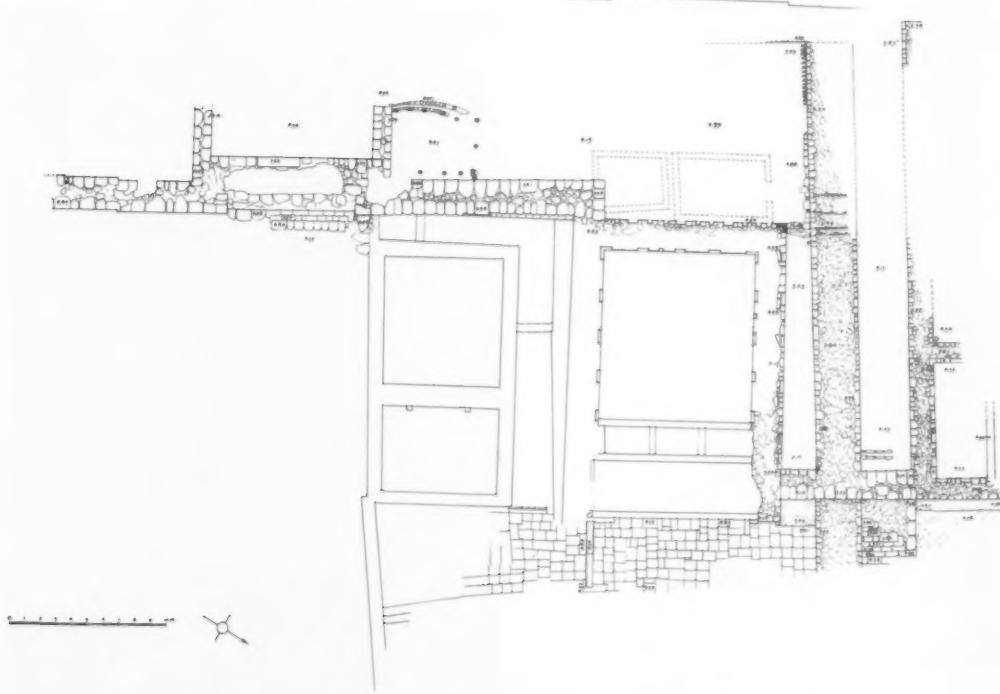


Fig. 2. Plan of the Phrygian level: areas excavated in 1957 in detail, in 1956 in outline

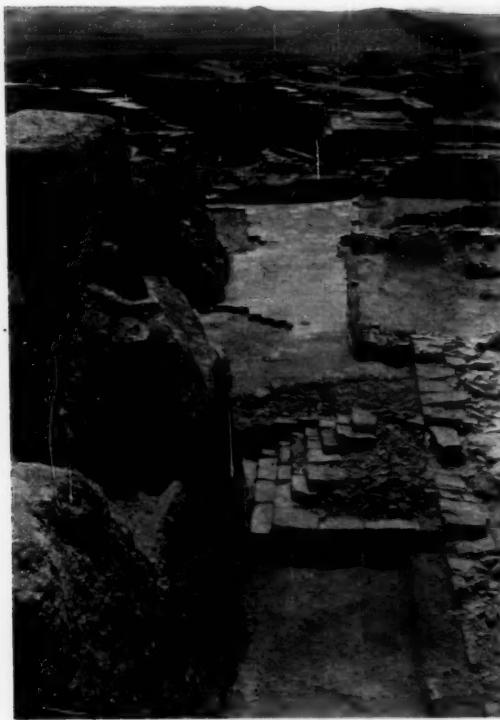


Fig. 6. View looking east: paved area with fronts of Burned Phrygian Building and West Phrygian House; below, north part of Enclosure Wall, cross-wall, and staircase

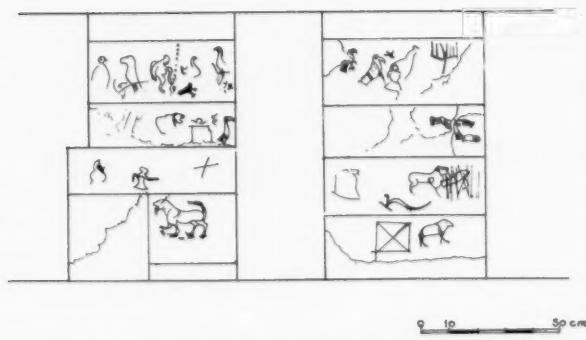
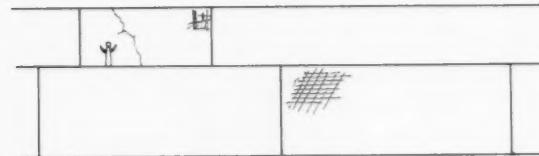


Fig. 3. Two piers with doodles, West Phrygian House.
Drawing by Dorothy Cox



Fig. 4. Poros orthostate slab with sculptured feline



Fig. 7. Northeast corner of M-3 as excavated;
part of Enclosure Wall at left



Fig. 5. View looking north: Terrace Building in foreground. Above (left to right) M-3, Enclosure Wall, and West Phrygian House with House Y and part of X



Fig. 8. Small buff vase from the west room of the Terrace Building



Fig. 9. Grinding stand in central room of Terrace Building, from west

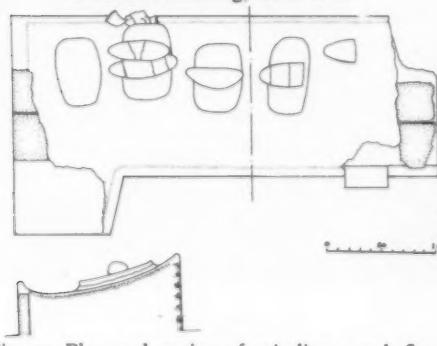


Fig. 10. Plan and section of grinding stand, fig. 9



Fig. 11. Outer wall of tomb chamber; inner wall appears through doorway.
At upper right, part of stone enclosure wall



Fig. 13. Cracked cross-beam and central gable, with part of roof

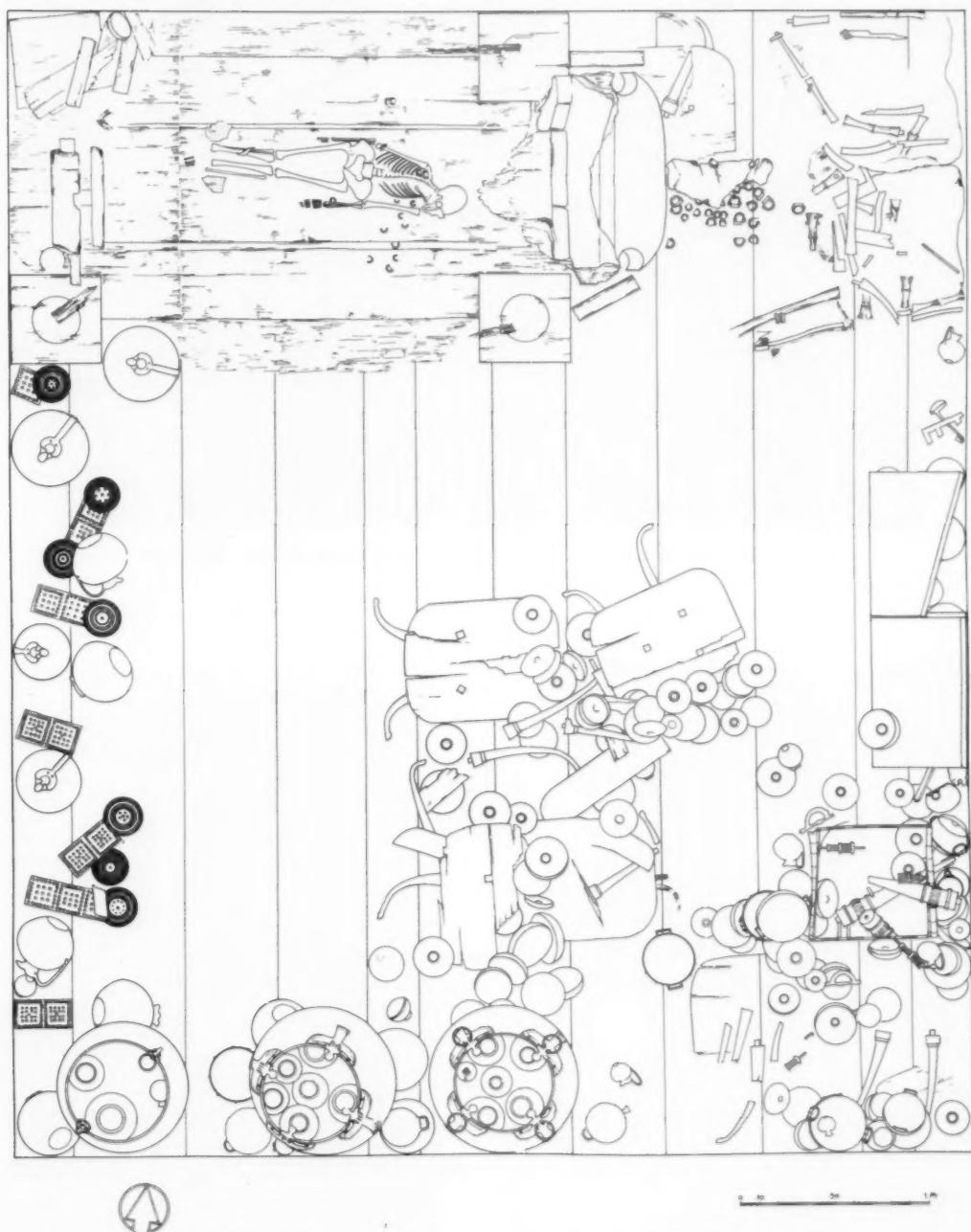


Fig. 14. Plan of the tomb and contents as found. Drawing by Dorothy Cox



Fig. 15. Three bronze cauldrons on iron ring-stands *in situ* against south wall

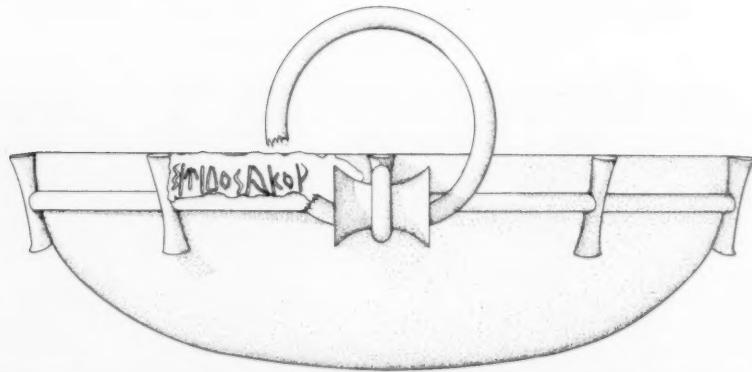


Fig. 21. Ring-handled bronze bowl with inscription in beeswax beside the handle.
Drawing by Grace Muscarella

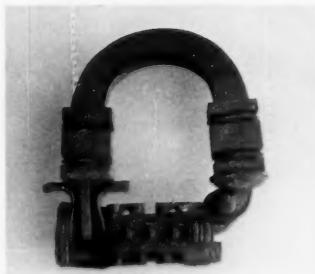


Fig. 20. Bronze fibula with double pin and removable safety catch

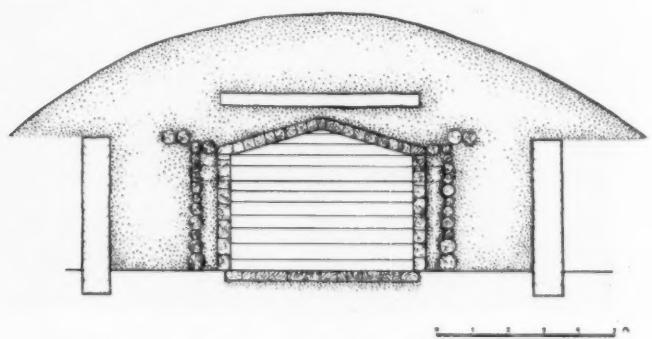


Fig. 12. Section through the tomb, looking north



Fig. 16. Handle attachment of bronze cauldron: bearded head



Fig. 17. Back of siren attachment of central cauldron; ring handle missing



Fig. 18. Bull-head attachment of bronze cauldron

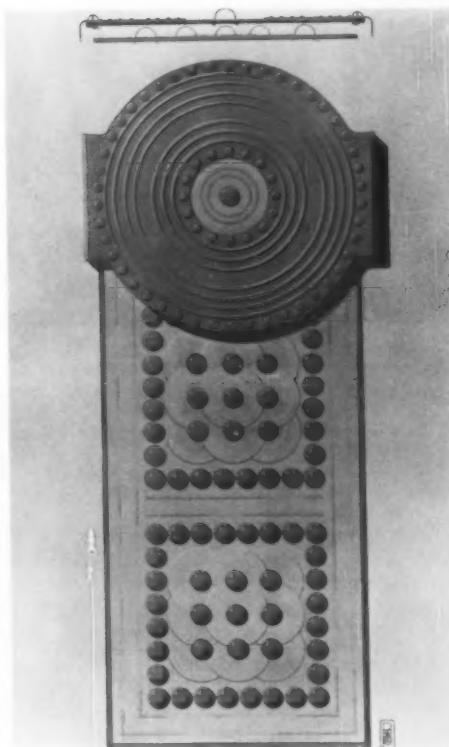


Fig. 19. Flap and disc of bronze and leather, from a water-color restoration by Piet de Jong



Fig. 22. Collapsed table decorated with inlay, as found

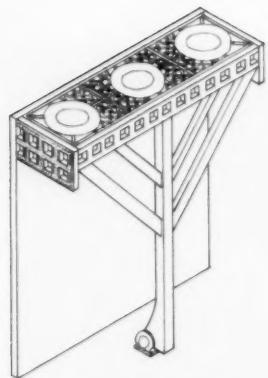


Fig. 25. Back view of screen reconstructed;
drawing by Dorothy Cox

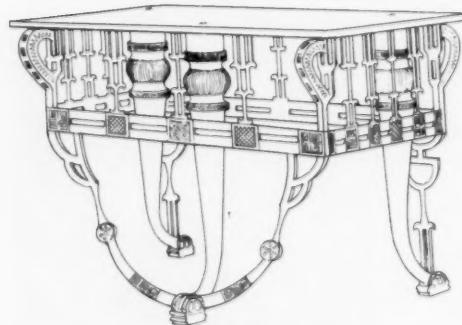


Fig. 23. Drawing of the table, fig. 22,
reconstructed, by Dorothy Cox

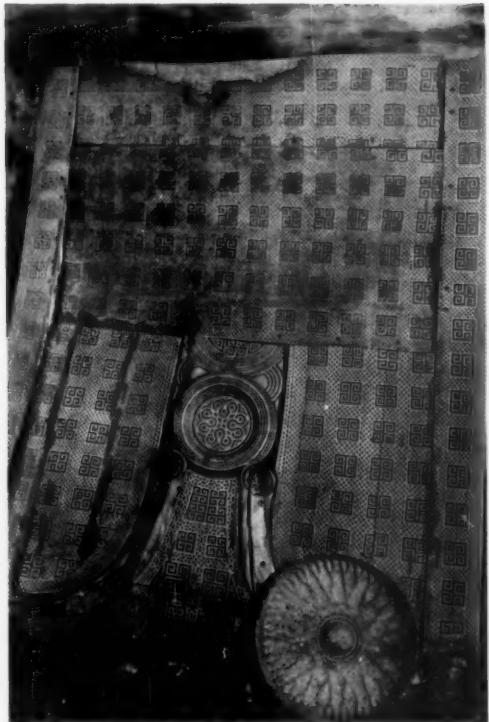


Fig. 24. Inlaid wooden screen leaning against
east wall of tomb, as found



Fig. 1. Cittadella hill and the northeast plateau



Fig. 3. Fragment of painted ridge tile



Fig. 2. The archaic settlement. Architectural remains of sixth, fourth and second centuries B.C.



Fig. 5. Maenad antefix, second quarter sixth century B.C.



Fig. 4 a-c. Gorgoneion antefixes, second half of sixth century B.C.





Fig. 8. Vases *in situ* in room of archaic settlement



Fig. 10. Necropolis II

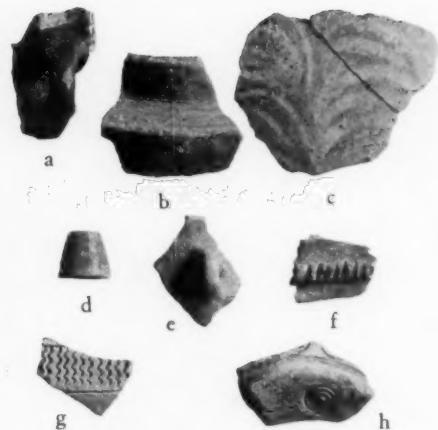


Fig. 9. Pre-Greek pottery: a-b, d-f Ausonian II ware; c painted ware with fan-shaped decoration; g-h S. Angelo Muxaro ware



Fig. 6. Bronze attachment with figure of Herakles and ram's head



Fig. 11. Tomb 4



Fig. 7. Syracusan tetradrachm



Fig. 12. Corinthian vases from Tomb 4



Fig. 13. Attic vases from Tomb 4



Fig. 14. Indigenous pottery from Tomb 4



Fig. 15. Colonial Archaic Ware from Tomb 4



Fig. 24. Silver diadem
(composite photograph)



Fig. 16 a-d. Attic black figure vases from Tomb 4



Fig. 17. View of Area IV



Fig. 18. The sanctuary with the Kore chapel in middleground and Demeter altar in right background



Fig. 19. Terracotta head of Kore



Fig. 22. Terracotta statuette of male deity



Fig. 21. Terracotta statuette of priestess



Fig. 20. Terracotta bust of a woman



b



a



c

Fig. 23. Three terracotta figurines

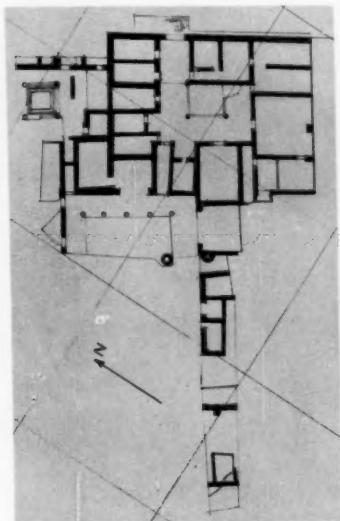


Fig. 25. Area II, plan of house and trench



Fig. 26. House of the Tuscan Capitals seen from north



Fig. 28. Terracotta figurine from House of the Tuscan Capitals



Fig. 27. House of the Tuscan Capitals, small garden peristyle



Fig. 29. Bronze coin from island of Gaulos (Gozo)

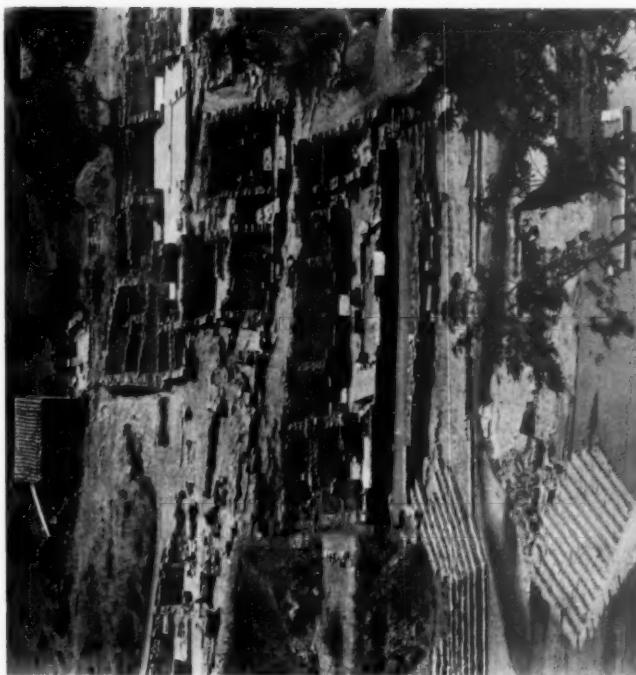


Fig. 30. View of Lower Agora, public building,
terrace house and House of the Doric Capital

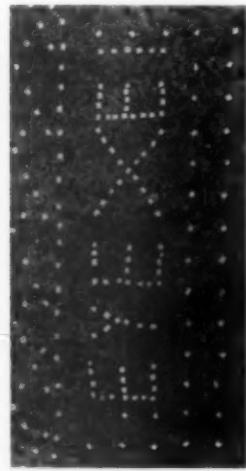


Fig. 32. Mosaic inscription in House
of the Doric Capital



Fig. 31. House of the Doric Capital



Fig. 38. Inscribed pithos rim



Fig. 33. Lower Agora with speaker's platform in right middle distance



Fig. 35. The temple in antis



Fig. 37. Southwest terrace wall

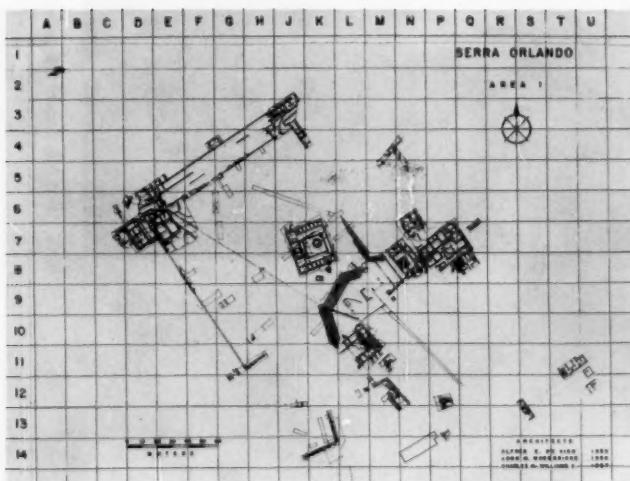


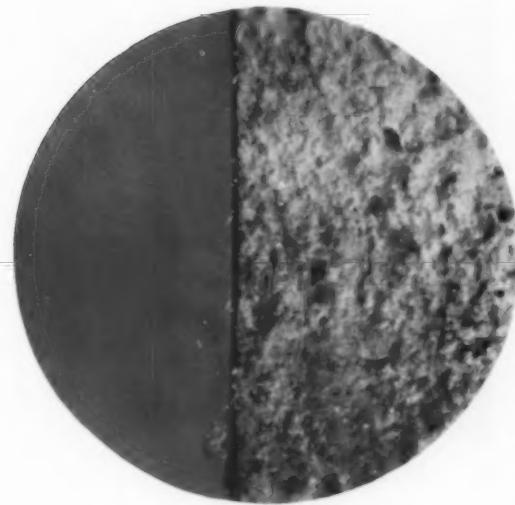
Fig. 36. Plan of Area I



Fig. 34. Altar in area between Macellum and Lower Agora



a. Stemless cup glazed black and red
(courtesy Metropolitan Museum of Art)



d. Cross section of black glaze magnified 65 x



c. Schematic drawing
of ancient kiln



b. Vase by the Altamura painter with two black glazes
(courtesy University Museum, Philadelphia)

PLATE 37 VON BOTHMER



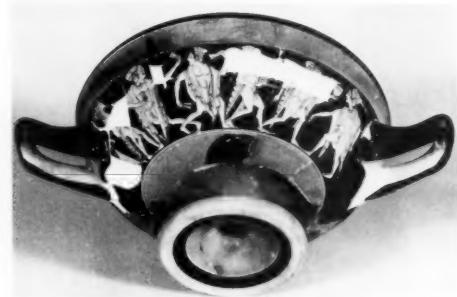
a



b



c



d



e



f



g



h

The Hegesiboulos Cup: figs. a, c and e before refiring;
figs. b, d, f, g and h, after refiring

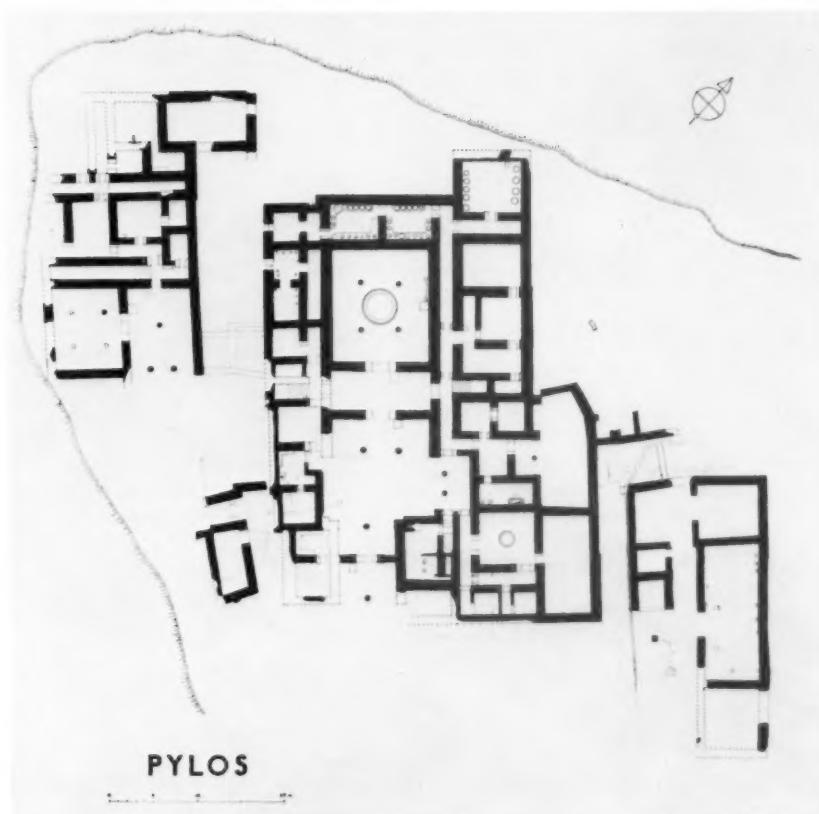


Fig. 1. Plan of Palace, 1957



Fig. 2. General view of Northeast Wing, from west



Fig. 3. Northeast Wing and ramp separating it from Central Wing, from west-northwest



Fig. 4. Southwest wall of Northeast Wing and water channel, from southeast

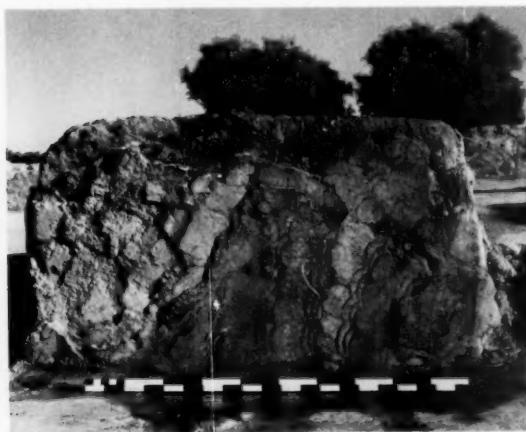


Fig. 6. Altar in court of Northeast Wing, from southeast (photograph by Lord William Taylour)



Fig. 5. Upper end of water channel and terracotta conduit, from south-southeast



Fig. 8. Crushed jar in passage, from west



Fig. 7. Southwest side of New Wing: shrine with façade fronting on court and altar, from east



Fig. 10. Large northeast room of New Wing, from east



Fig. 9. Two jars and crushed pottery on floor of north room, from northwest



Fig. 11. Tablets Ta709 and 712 joined by new fragment (photograph by Alison Frantz)



Fig. 12. Remains of Tholos Tomb V 1, from southeast



Fig. 13. Tholos Tomb V 1, from northwest



Fig. 14. Large jar in Palace Style (Inv. 57.778)

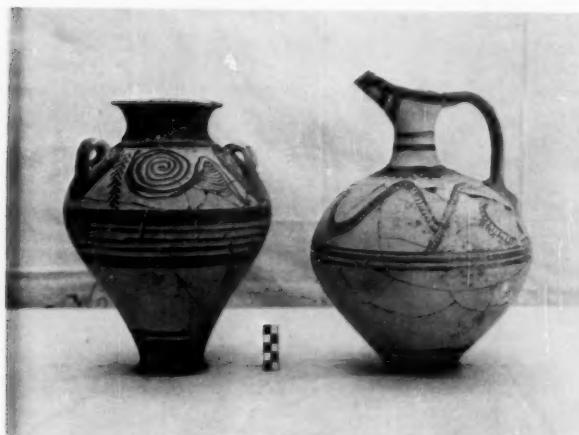


Fig. 15. Two pots from Chamber Tomb E 6



Fig. 17. Two pots from Chamber Tomb K 1

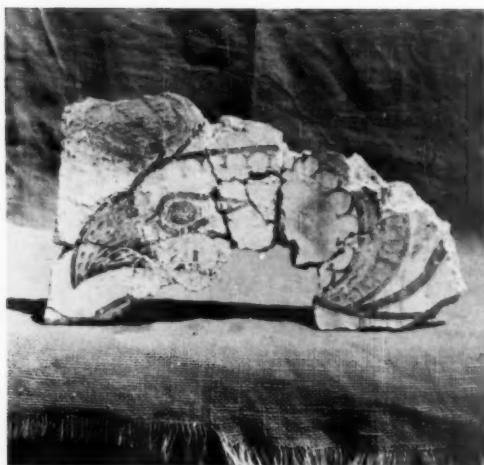


Fig. 18. Fresco from Queen's Hall,
head of griffin

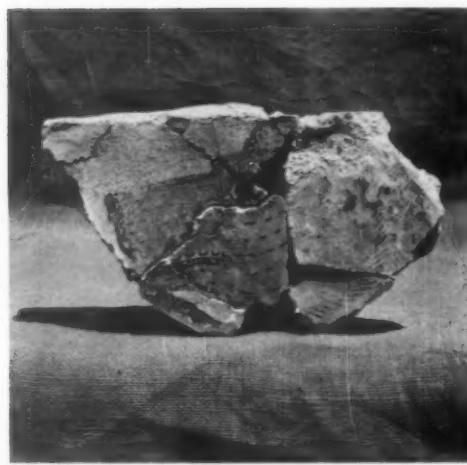


Fig. 19. Fresco from Queen's Hall,
head of panther or dog



Fig. 16. Wall blocking doorway, Chamber Tomb K. 1
(photograph by Lord William Taylour)



Fig. 20. Seal impression, procession of women
(photograph by Alison Frantz)

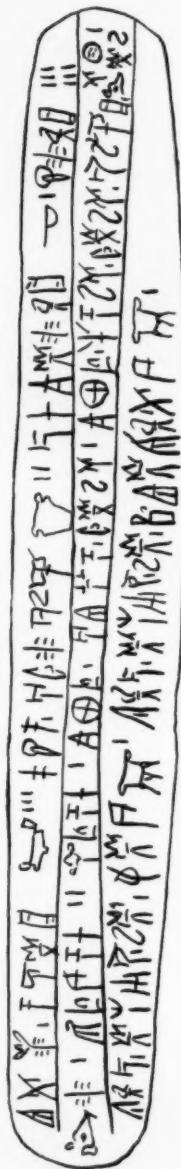
Fig. 21. Seal impression, lion hunt
(photograph by Alison Frantz)



Cc1258



Qa1259



Xn1260



Sa753



Xn1261



Sa843

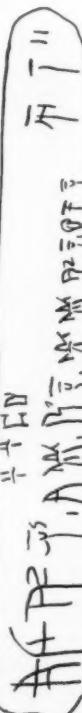


Eb885

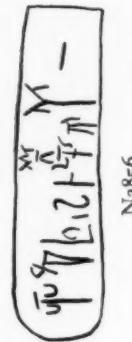
Ta709, 712



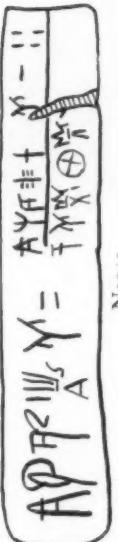
Sa856



Ea757, 819



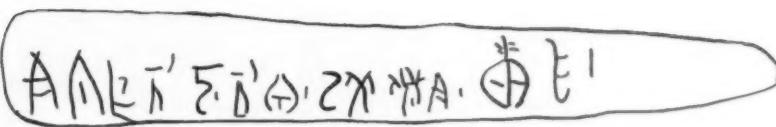
Na856



Na941



Aa1263



Sa1264



Sa1270



Sa1265



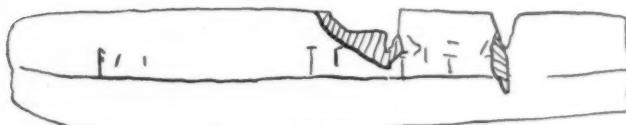
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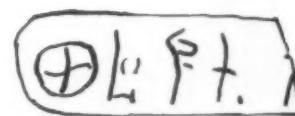
Sa1266



Ac1272



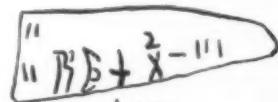
Sa1266 rev.



Ac1273



Sa1267



Ac1274



Sa1268



Sa1269



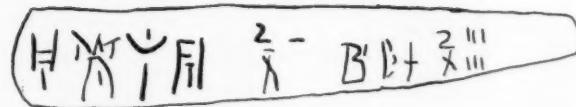
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Ac1276



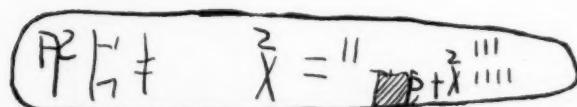
Ac1278



Ac1277



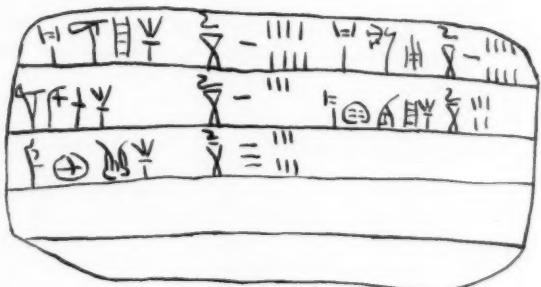
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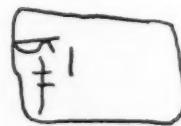
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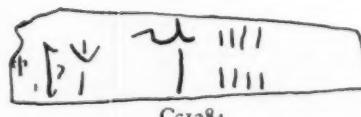
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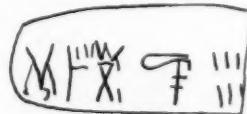
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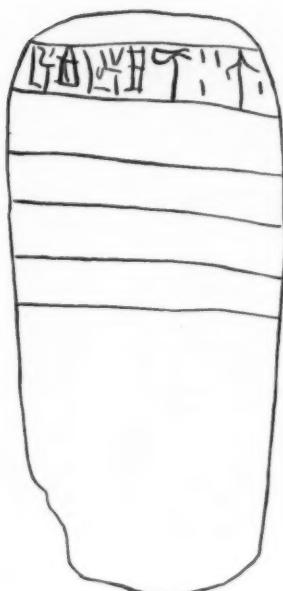
Cc1283



Cc1284



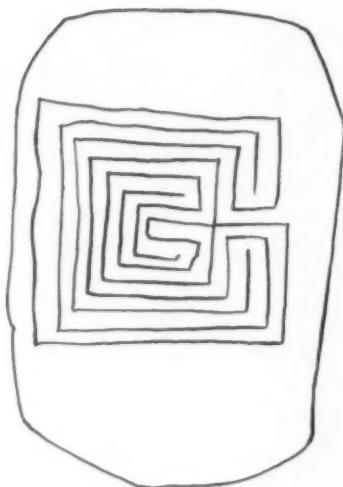
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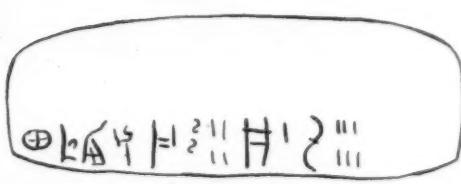
Cn1286



Cn1287



Cn1287 rev.



Ja1288



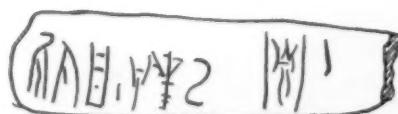
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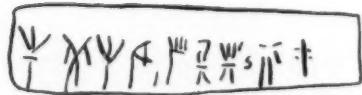
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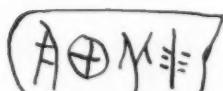
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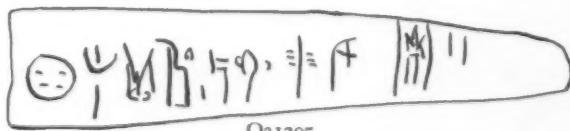
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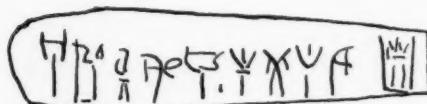


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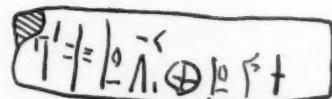


Qa1295

PLATE 47 LANG



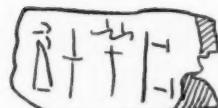
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Qa1304



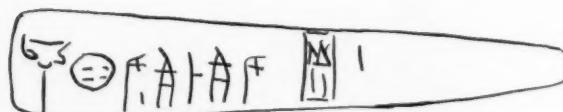
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Qa1305



Qa1306



Qa1298



Qa1307



Qa1299



Qa1308



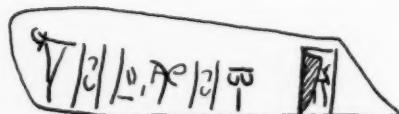
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Qa1309



Qa1310



Qa1301



Qa1311



Qa1312



Qa1302



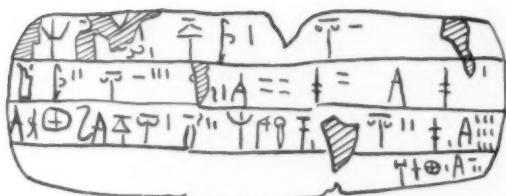
Qa1303



Sa1313



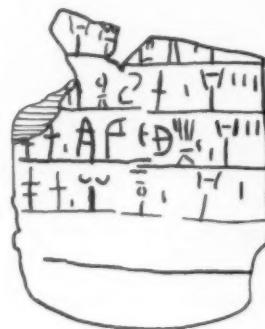
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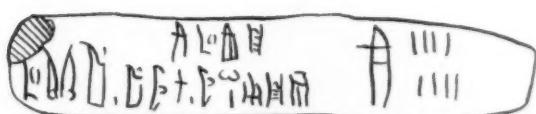
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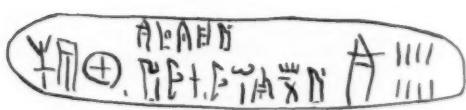
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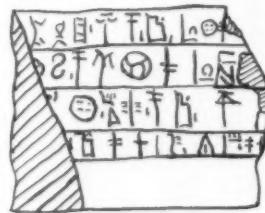
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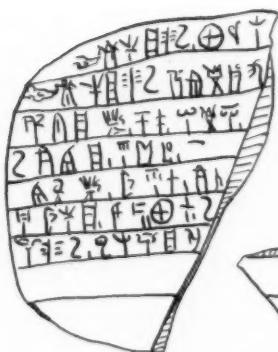
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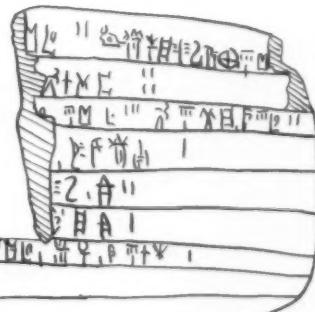
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Un1321

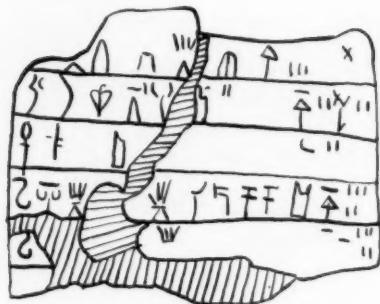


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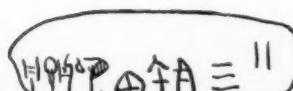


Un1320 rev.

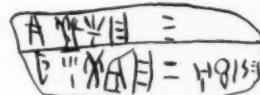
PLATE 49 LANG



Un1322



Va1323



Va1324



Wr1325 obv.



Wr1325 rev.



Wr1326 rev.



Wr1327 rev. 1



Wr1328 rev. 1



Wr1329 rev.



Wr1331 obv.



Wr1332 obv.



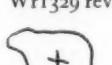
Wr1333 rev.



Wr1327 rev. 2



Wr1328 rev. 2



Wr1330 rev.



Wr1331 rev.



Wr1332 rev.



Wr1334 obv.



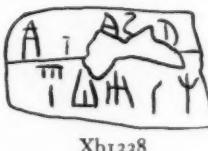
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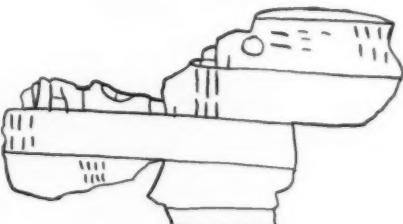
Xb1337



Xa1336



Xb1338



Xc1339



Xn1340



Xn1341



Xn1342



Xn1343



Fig. 1. Hydria handle, Louvre 2784.
No. 3 (courtesy, Louvre)



Fig. 3. Hydria handle, Louvre 2785.
No. 12 (courtesy, Louvre)



Fig. 9. Lower part of handle of oinochoe (or hydria).
Athens, Agora Museum, No. 21 (courtesy, American School
of Classical Studies, by permission of Oscar Broneer)



Fig. 4. Oinochoe, British Museum 2473, detail.
No. 16 (courtesy, British Museum)



Fig. 5. Top view of oinochoe of fig. 4



Fig. 6. Oinochoe handle. Walters Art Gallery 54.912.
No. 20 (courtesy, Walters Art Gallery)



Figs. 7-8. Other views of oinochoe handle of fig. 6

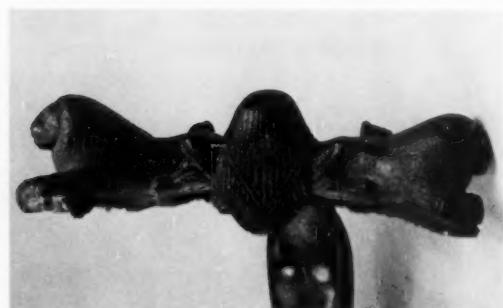


Fig. 2. Hydria, detail. Berlin 8467. No. 8
(courtesy, Staatliche Museen)





Fig. 10. Oinochoe handle. Thorvaldsens Museum 273.
No. 22 (courtesy, Thorvaldsens Museum)

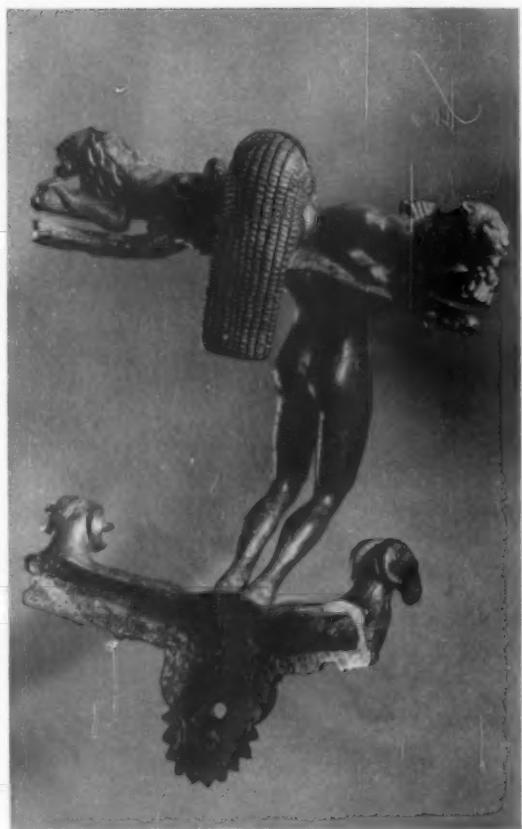


Fig. 11. Back view of handle of fig. 10



Fig. 12. Oinochoe handle. British Museum 582.
No. 24 (courtesy, British Museum)



Fig. 13. Profile view of handle of fig. 12



Fig. 16. Schnabelkanne handle. Metropolitan Museum of Art 14.130.3. No. 29 (courtesy, Metropolitan Museum of Art)



Fig. 14. Oinochoe handle. British Museum 581. No. 25 (courtesy, British Museum)



Fig. 15. Profile view of handle of fig. 14

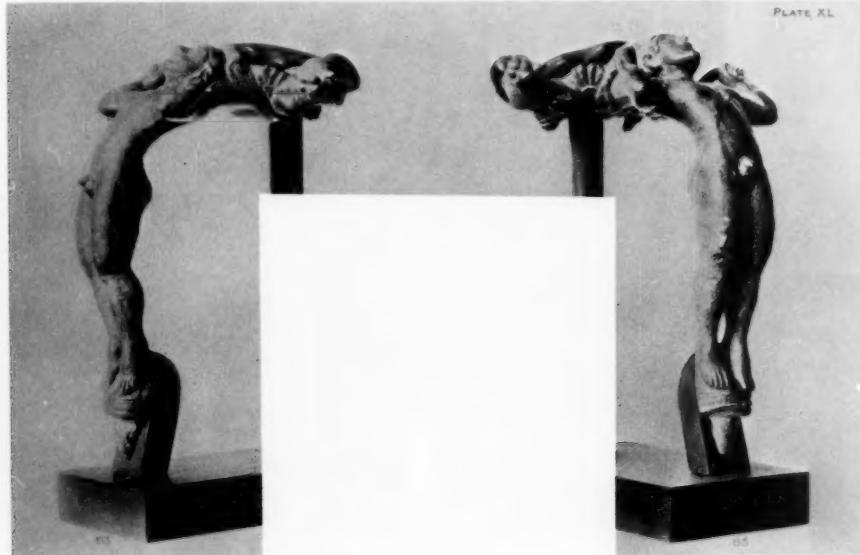


Fig. 17. Pair of amphora handles. Location unknown. No. 42 (after Catalogue, Wyndham Francis Cook)



Fig. 1. Within Asopos Gorge



Fig. 2. Narrow part of Asopos Gorge



Fig. 3. Chalkomata



Fig. 4. Chalkomata, ancient fort



Fig. 5. Grundy's route



Fig. 6. Middle gate, from Sastani



Fig. 7. Pyramid-rock at Nevropolis



Fig. 8. Probable Phocian position



Fig. 10. Wall east of Monastery of Panagia



Fig. 11. The "Stone of the Blackbuttock"



Fig. 13. Phocian wall



Fig. 9. Ridge with ancient wall; Great Ravine to right



Fig. 12. Hill of the Phocian wall

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GENERAL SECRETARY

The General Secretary of the Archaeological Institute of America is now Professor LeRoy Archer Campbell, of Brooklyn College. The office has moved permanently to New York and all communications intended for the Secretary's office should be addressed to:

Professor LeRoy A. Campbell
5 Washington Square North, New York 3, N.Y.

The location of the office of the Editor-in-Chief of the American Journal of Archaeology remains unchanged.

DUES

The Fifty-ninth General Meeting of the Council on December 28, 1957, voted the following increase in membership dues as of March, 1958:

Annual	\$15	Student	\$7.50
Sustaining	\$20	Associate	\$7.50

DAVID M. ROBINSON FELLOWSHIP

Friends of David M. Robinson are interested in establishing a fellowship in his memory at the American School of Classical Studies at Athens. Those interested should communicate with Professor C. Alexander Robinson, Brown University, Providence, Rhode Island.

BACK NUMBERS

Numbers of the Journal previous to 1956 (when available) are now handled by Stechert-Hafner, 31 East 10 St., New York, at the following prices: before 1910, \$3. per issue; 1910-1955, \$2.50 per issue, \$10. per volume. Inquiries should be sent directly to this address.